



**BLUE ROCK  
ENVIRONMENTAL, INC.**

Mr. Robert Stone  
Hazardous Materials Specialist  
Humboldt County Health Department  
Division of Environmental Health  
100 H Street, Suite 100  
Eureka, California 95501

February 27, 2006

**Re: Closure Evaluation  
Former Cash Oil Arcata  
421 J Street, Arcata, CA  
HCDEH LOP No. 12302  
Blue Rock Project No. NC-3**

Dear Mr. Stone,

This report presents summarizes historical corrective activities and conditions at 421 J Street, Arcata, Humboldt County, California (site) (Figure 1), and was prepared for Clyde Harvey by Blue Rock Environmental, Inc. (Blue Rock).

## **Background**

### Site Description

The former Cash Oil Arcata service station is located on the corner of J Street and Samoa Boulevard (State Highway 255) in Arcata, California (Figure 1), in an area of low topographic relief on the Arcata Bottoms.

### Former Underground Storage Tanks

A gas station has occupied this site since approximately 1978. The Cash Oil Company began operating the station in 1989. In 1997, permission was granted by the Humboldt County Division of Environmental Health (HCDEH) to upgrade the existing underground storage tanks (USTs). The UST system consisted of two (2) upgraded single-wall steel 10,000-gallon USTs and one (1) fiberglass 10,000-gallon UST. The USTs were located along the northern edge of the property and were plumbed to two (2) dispenser islands located in the center of the property (Figure 2). At the time of upgrade, the UST system was used to store and dispense unleaded gasoline.

In May 2000, Cash Oil Company sold the property and upgraded UST system to Golden Gate Petroleum of Martinez, California.



In January 2004, Beacom Construction (Beacom) of Fortuna, California, on behalf of Golden Gate Petroleum, removed the (3) 10,000-gallon USTs and associated fuel dispensers from the site.

On March 18, 2004, Beacom installed two (2) new 10,000-gallon USTs at the site. During the installation of these USTs monitoring well MW-1 was destroyed.

#### Discovery of Petroleum Release

In May 1997, during tank upgrade activities, soil and groundwater samples were collected from two borings (B-1 and B-2) that determined a release of petroleum had occurred from the UST system.

#### Site Investigation History

Subsurface investigation has been ongoing at the site since initial 1997. A total of approximately nine (9) borings (B-1 through B-3 and B-6 through B-11) have been drilled and seven (7) monitoring wells (MW-1 through MW-7) have been installed to date. Additionally, numerous soil and groundwater samples have been collected from boring, wells, and/or excavations through the course of corrective action at the site. Historical boring, well, and sample locations are shown on Figure 2, well construction data are summarized in Table 1, soil sample data are summarized in Table 2, and groundwater elevation and sample data are included in Table 3.

#### Petroleum Type Detected During Investigation

Through the course of investigation the following petroleum compounds have been detected in soil and/or groundwater samples: total petroleum hydrocarbons as gasoline (TPHg), benzene, toluene, ethylbenzene, xylenes (BTEX), methyl tert-butyl ether, tert-butanol, tert amyl methyl ether (MTBE, TBA, TAME), methanol, and ethanol. The fuel additives methanol and ethanol have only been detected sporadically at low concentrations, and the additives di-isopropyl ether (DIPE) and ethyl tert-butyl ether (ETBE) have not been detected.

#### Summary of Hydrogeology

A total of approximately 15 individual borings (including temporary borings and those converted to wells) have been drilled and logged at the site. The maximum depth explored has been 20 feet bgs. Clays and silts have been logged mostly from baserock to the depth of 20 feet bgs. An isolated, thin bed (i.e. <2 ft thick) of sand was observed in MW-5 at a dept of 5 feet bgs. Additionally, sand was observed from 19 to 20 feet bgs in MW-5 and MW-7, but this sand was not observed in any of the other five wells drilled to 20 feet bsg. Neither of these sands appear to be laterally continuous. Cross sections are shown on Figures 2a and 2b, and copies of historical boring logs are attached.

During drilling, groundwater has been first observed at depths ranging from approximately 5 to 10 feet bgs. Groundwater in the temporary borings and wells stabilizes around a depth of 5 feet bgs, with seasonal variations ranging from approximately 4 to 8 feet bgs.



Monitoring wells MW-1 through MW-7 have all been screened from 5 to 20 feet bgs. The monitoring wells appear to adequately monitor conditions of first encountered shallow groundwater in the silts and clays beneath the site.

Groundwater elevations from monitoring wells MW-1 through MW-7 were used to evaluate flow and gradient in the shallow water bearing zone since November 2001 (when installation of wells MW-5, 6, and 7 completed the current suite of wells) to November 2005. Groundwater elevations have ranged from approximately 8 to 12 feet msl (equating to depths of approximately 4 to 8 feet bgs). Groundwater flow during the 17 events evaluated has been consistently to the south-southeast at gradients ranging from approximately 0.005 to 0.015 ft/ft (Figure 3). This flow direction is consistent with local topography and toward the nearest surface water body (Arcata Marsh) located approximately 1,400 feet south of the site.

The potential for vertical gradients has not been directly evaluated at this site; however, such work has been performed at a nearby site: Cahill Shell, 1122 K Street, Arcata (this site is located approximately 2,000 feet north of the subject site). Work at Cahill Shell indicates that there is an upward gradient between depths of approximately 4-12 ft bgs and 18-23 ft bgs (SHN, 2005). This condition would inhibit the downward migration of dissolved-phase chemicals of concern.

#### Summary of Remedial Activities

Clearwater Group (Clearwater) submitted a *Corrective Action Plan (CAP)*, dated May 10, 2002 to the HCDEH. The *CAP* presented a summary of the hydrogeology and contamination. The report evaluated remedial alternatives and concluded that a combination of source soil removal, groundwater extraction from open excavation, and enhanced bioremediation using oxygen releasing compounds (ORC) would be the best remedial alternative for the site. An enhanced bioremediation background study was proposed in the *CAP*. Preparation of a *CAP* was requested by the HCDEH in a letter dated March 13, 2002. The *CAP* was approved by the HCDEH in a correspondence letter dated May 21, 2002.

Clearwater submitted a *Remedial Action Plan (RAP)*, dated February 14, 2003 to the HCDEH for review. The *RAP* presented results of natural attenuation pilot testing and details for the excavation of impacted soil, excavation dewatering activities, and the use of enhanced bioremediation (ORC). These remedial activities were based on working in conjunction with future site renovation activities.

In January 2004, Clearwater supervised Felt Mountain Construction of Corning, California in removal of the existing UST system. Soil samples collected for UST system removal contained detectable levels of TPHg, BTEX, MTBE, TBA, TAME, and lead (Pb) (Figure 4 and Table 2). Additionally, a pit water sample was collected on January 15, 2004, which contained detectable concentrations of TPHg, BTEX, MTBE, TBA, and TAME. A subsequent pit water sample on January 20, 2004 also contained detectable concentrations of Pb (Table 3).



Remedial excavation activities followed immediately after the UST removal. The area of the excavation covered the majority of site (approximately 3,600 ft<sup>2</sup>), except for the northeast corner where the building was located, and dug to a maximum depth of 12 feet bgs (Figure 5). Well MW-1 was destroyed earlier, in preparation for remedial excavation and installation of new USTs. Well MW-3 was destroyed during excavation activities. Approximately 2,332 tons of petroleum impacted soil was excavated and transported to BioIndustries in Red Bluff, California for disposal (copies of disposal receipts are attached). Approximately 13,000 gallons of petroleum impacted groundwater was pumped from the remedial excavation, and transported to the Seaport facility in Redwood City, California for disposal (copies of disposal receipts are attached).

During excavation activities, soil samples were collected from (1) excavated soil to document source removal and (2) final excavation dimensions to verify clean-up (Table 2).

Blue Rock estimated the TPHg mass removed in soil excavated using the average TPHg concentration of excavated soil and total excavated soil mass. The calculation is shown below and details are shown on the attached spreadsheet.

$$\text{Mass}_{(\text{TPHg})} = \text{Mass}_{(\text{soil})} * \text{Avg TPHg Conc.}_{(\text{excavated soil})}$$

Where,

$$\text{Mass}_{(\text{soil})} = 2,332 \text{ tons} = 4,664,000 \text{ lbs (where 2,000 lbs/ton)}$$

$$\text{Avg TPHg Conc.}_{(\text{excavated soil})} = 332 \text{ mg/kg} = 0.000332 \text{ unites (where 1 kg / 1,000,000 mg)}$$

$$\text{Mass}_{(\text{TPHg})} = 4,664,000 \text{ lbs} * 0.000332 \text{ unitless}$$

$$\text{Mass}_{(\text{TPHg})} = 1,548 \text{ lbs}$$

Thus, Blue Rock estimates that approximately 1,548 lbs of TPHg were removed from the site through soil excavation.

The reduction in TPHg soil mass was intended to remove, or at least significantly reduce, the secondary source of groundwater impact, which results in continued partitioning of petroleum from the sorbed-phase to the dissolved-phase. If the sorbed-phase source is removed, partitioning of petroleum to the dissolved-phase decreases. This condition should result in declining dissolved-phase concentration over time following the excavation. In order to accelerate the decline in dissolved-phase petroleum compounds, Clearwater mixed approximately 1,020 pounds of oxygen-release compound (ORC) into the excavation backfill placed at or below the water table. ORC is designed to release oxygen into the groundwater slowly over time for the purpose of elevating dissolved-oxygen levels to support enhanced aerobic biodegradation of the residual dissolved-phase plume.

Remedial activities are presented in Clearwater's *Remedial Report of Findings*, dated February 10, 2004. The HCDEH concurred with Clearwater's recommendations in a letter dated March 8, 2004.



On March 18, 2004, Beacom pumped approximately 10,000 gallons of groundwater from a UST installation excavation proximal to MW-1. On March 29 and 30, 2004, Blue Rock discharged approximately 10,000 gallons of groundwater under permit that contained acceptable levels of MTBE into the City of Arcata's sewer system (copy of discharge permit is attached). Remedial activities are presented in Blue Rock's *First Quarter 2004 Groundwater Monitoring Report*, dated April 5, 2004.

#### Comparison of Pre- & Post-Remedial TPHg Mass in Soil

In order to evaluate the effectiveness of the remedial soil excavation, Blue Rock attempted to compare the pre-remedial and post-remedial TPHg mass in soil.

At this site, many of the elevated TPHg concentrations detected at the site were discovered in January 2004, at the time of UST system removal and over-excavation. If assessment data prior to that removal were used to estimate the pre-remedial in-situ mass, it would have likely resulted in a significant underestimation. Therefore, Blue Rock opted to estimate pre-remedial mass as the sum of TPHg mass removed by excavation and the TPHg mass remaining after remediation. The TPHg mass removed by excavation has already been estimated above at 1,548 lbs.

The TPHg mass remaining after remediation was calculated based on soil samples collected from excavation sidewalls and from existing soil data from borings and wells not removed by excavation. TPHg mass calculations are attached. The post-remedial excavation distribution of TPHg in soil is shown on Figure 6.

Therefore, the pre-remedial TPHg mass in soil is estimated by the sum of TPHg removed and TPHg remaining, which is 1,548 lbs plus 1.25 lbs equals 1,549 lbs.

	<u>Pre-Remediation</u>	<u>Post-Remediation</u>
<u>TPHg</u>	1,549 lbs	1.25 lbs

Based on this calculation, the TPHg mass in soil has been reduced by >99.9%.

#### Comparison of Pre- & Post-Remedial TPHg and MTBE Mass in Groundwater

Blue Rock evaluated the pre- and post-remedial masses of TPHg and MTBE in groundwater. The dissolved-phase plume masses were estimated based on areal extent of the each plume, estimated plume thickness, assumed soil porosity of 35%, and concentrations specific to each monitoring event. A graphical representation of the model used to calculate dissolved-phase TPHg / MTBE mass and associated spreadsheet calculations are attached. The pre-remedial distribution of TPHg and MTBE in groundwater are shown on Figures 7a and 7b. The post-remedial distribution of MTBE in groundwater is shown on Figure 8. The following dissolved-phase TPHg and MTBE masses were calculated:



	<u>Pre-Remediation (11/03)</u>	<u>Post-Remediation (11/05)</u>
<u>TPHg</u>	1.6 lbs	not detected (not calculable)
<u>MTBE</u>	18.2 lbs	0.16 lbs

Based on these calculations, the dissolved-phase MTBE mass has been reduced by >99%, and the dissolved-phase TPHg mass has been likely reduced by at least that percentage, as TPHg is now non-detect in all wells.

#### Documented Intrinsic Bioremediation of the Plume

Data collected in 2002 demonstrated the existence of an aerobic hydrocarbon degrading microbial population within the plume and physical/chemical parameters conducive to supporting the aerobic biodegradation of the petroleum hydrocarbons in the site subsurface (Table 4). The potential for intrinsic aerobic biodegradation of dissolved-phase petroleum compounds was confirmed by the documented first-order decay of dissolved-phase chemical in MW-1 prior to active remediation (see section below). In order to accelerate this natural condition, approximately 1,020 lbs of ORC were mixed into the excavation backfill at a depth of 12 feet bgs (below the water table). Dissolved-oxygen levels increased to between approximately 1 to 2 mg/L in site monitoring wells for one year following placement of ORC. This indicates that the use of ORC succeeded in elevating dissolved-oxygen levels in the saturated zone for accelerated aerobic biodegradation dissolved-phase petroleum hydrocarbons.

#### First-Order Decay Trends for Well Concentrations

In order to evaluate the rate of attenuation and when chemicals of concern will reach NCRWQCB Clean-up Goals, concentrations of TPHg and MTBE in MW-2, located immediately downgradient of the excavation, were plotted against time since the remedial excavation activities. Also, in order to further evaluate potential natural attenuation that has been ongoing since the release, concentrations of MTBE in MW-1 were plotted against time until the well was removed for installation of new USTs in March 2004. Please refer to Chart 1 (MW-1) and Chart 2 (MW-2). These data were fit with trend lines and associated equations in the method shown in Buscheck, O'Reilly, and Nelson 1993:

$$C(t) = C_0 e^{-(kt)}$$

Where,

C(t) is concentration as a function of time (t)

C<sub>0</sub> = is concentration as t = 0

k = is the decay rate (t<sup>-1</sup>)



The following table summarizes the results:

Well	TPHg Decay Rate (day <sup>-1</sup> )	Estimated Year Clean-up Goal Met	MTBE Decay Rate (day <sup>-1</sup> )	Estimated Year Clean-up Goal Met
MW-1	NA	Already Met	-0.0023	~2005
MW-2	-0.0052	Already Met	-0.0029*	~2010

Notes:

R<sup>2</sup> value for equations are >0.75 unless otherwise noted. R<sup>2</sup> values >0.75 are generally accepted as a "good fit" between data set and fitted line/equation.

NA = not applicable

\* = R<sup>2</sup> value = 0.68. Although the equation producing the decay rate is <0.75, qualitative inspection of the plot indicates concentrations are decreasing and the R<sup>2</sup> value is not substantially below the benchmark of 0.75.

Discussion of Remnant Petroleum Compounds in Groundwater Following Remedial Excavation

The remnant dissolved-phase plume appears to consist only of MTBE. The core of this plume is located around MW-2, which is located immediately downgradient of the edge of the remedial excavation. As of November 2005, MTBE has only been detected in wells MW-2 and MW-6, at concentrations of 360 µg/L and 1µg/L, respectively. The MTBE plume appears defined laterally, and its lateral extent is shown on Figure 8. The vertical extent of MTBE has not been defined. Dissolved-phase TPHg and benzene are below detection limits, and thus below Clean-up Goals.

The extent of the dissolved-phase contaminant plume associated with the site was examined over the life of the project. The dissolved-phase plume appears to be stable, as no significant levels of chemical concentrations have been detected in downgradient delineation wells (MW-6 and MW-7) since the wells were installed nearly five years ago.

Discussion of Lead Concentrations

Blue Rock reviewed literature for native Pb concentrations in soil for the area of Eureka (Shacklette and Boerngen, 1984) and compared them to Pb concentrations detected at the site. The following table summarizes these data:

	Eureka Background Conditions	Site Minimum	Site Maximum
Pb (mg/kg)	15 - 30	4.22	8.59

The Pb concentrations detected in soil at the site are all below the range of the reported native concentrations. Therefore, the Pb concentrations detected in soil samples from the site are interpreted to represent background concentrations.



Summary of Nearby Sensitive Receptors

A previous survey of sensitive receptors near the site only found one private well located at 1220 5<sup>th</sup> Street in Arcata. This well is located approximately 400 feet northwest of the site. The well is located upgradient of the site, based on the past 17 monitoring events showing flow direction to be toward the south-southeast. Therefore, there does not appear to be a potential for this private well to be impacted.

Secondary Unauthorized Release by Golden Gate Petroleum

In addition to the initial unauthorized release attributed to Cash Oil Company in 1997, a secondary unauthorized release occurred at the site after Cash Oil Company's period of occupation and operation.

On December 24, 2003, there was an unauthorized release of petroleum hydrocarbons at the site near the dispenser island and monitoring well MW-1. A report of this release is on file at the HCDEH CUPA Department. The HCDEH responded to this release by issuing Golden Gate Petroleum a "Notice of Responsibility" letter dated February 19, 2004.



## Summary

- In January 2004, the UST system, piping, and dispensers were removed from the site.
- In January 2004, the site was over-excavated, as part of a regulatory approved remedial strategy, for the purpose of removing as much soil impacted with gasoline and gasoline additives. The remedial excavation generated approximately 2,332 tons of impacted soil, which contained an estimated 1,548 lbs of TPHg. The soil was disposed at BioIndustries in Red Bluff, California. The maximum TPHg and MTBE concentrations detected in sidewall verification samples were 17 mg/kg and 1.8 mg/kg in ES-4-8', respectively.
- In between January and March 2004, the excavations were dewatered twice to remove as much impacted groundwater from the site as possible. A total of 23,000 gallons of gasoline impacted groundwater was pumped from the pit.
- Approximately 1,020 lbs of ORC was placed in the excavation fill in the saturated zone to increase dissolved-oxygen levels and accelerate in-situ aerobic biodegradation of the dissolved-phase plume, which had been documented to be occurring by a previous study.
- The remedial excavation removed an estimated 1,548 lbs of TPHg, which resulted in an estimated sorbed-phase TPHg reduction of >99%. It is estimated that only 1.25 lbs of residual TPHg mass is present in soil along the fringe of the excavation. The significant reduction in TPHg mass in soil will hasten groundwater clean-up, as there is much less mass to partition into the dissolved-phase. Post-excavation groundwater monitoring data bear this out.
- The remedial actions resulted in a significant reduction in dissolved-phase mass. Dissolved-phase MTBE was reduced from 18.2 lbs (11/03) to 0.16 lbs (11/05), which represents >99% mass reduction. Post-remedial dissolved-phase TPHg could not be calculated because it is no longer above detection limits at the site.
- TPHg and MTBE concentrations have a first-order decay rate of  $-0.0052 \text{ day}^{-1}$  and  $-0.0029 \text{ day}^{-1}$ , respectively (for MW-2). All chemicals of concern are now below Clean-up Goals except for MTBE. Based on the first order decay rate for MW-2, MTBE will reach Clean-up Goals by approximately 2010.
- Cumulative groundwater monitoring data indicate that the plume is stable and not migrating.
- No nearby sensitive receptors are threatened by current plume.



## Recommendations

The only outstanding issue not addressed directly by historical site data is vertical delineation of MTBE. As discussed above, SHN documented the presence of an upward vertical gradient between the zones of 4-12 ft bgs and 18-23 ft bgs at the Cahill Shell site, which is located approximately 2,000 feet north of the subject site. If these findings were extrapolated to the subject site, it may render additional assessment of the vertical extent of MTBE moot, as an upward gradient would appear to mitigate the potential for downward migration of MTBE. If this extrapolation of data satisfies the HCDEH, Blue Rock proposes preparation of a Contingency Management Plan for future site work that may encounter petroleum impacted soil as a final document prior to case closure.

If the HCDEH does not concur with extrapolation hydrogeologic conditions from the Cahill Shell site, then it would be appropriate to perform limited drilling of temporary borings to collect groundwater samples below the depth of 20 feet bgs to empirically delineate the remnant MTBE plume at the site. If this is required, Blue Rock proposes preparation of a brief workplan to complete that work.

## References

- Buscheck, T.E., O'Reilly, K.T., and Nelson, S.N. 1993. *Evaluation of Intrinsic Bioremediation at Field Sites*. Proceedings of the Conference of Petroleum Hydrocarbons and Organic Chemicals in Ground Water, National Groundwater Association/API, Houston, TX. November 10-12.
- Shacklette, H.T. and Boerngen, J.G. 1984. *Element Concentrations in Soil and Other Surficial Material of the Conterminous United States*. U.S. Geological Survey Professional Paper 1270, 105 p.
- SHN Consulting Engineers & Geologists, Inc. August 2005. *Site Summary and Additional Site Investigation Workplan*. Cahill Service Station, Arcata, CA.



## Certification

This report was prepared under the supervision of a California Professional Geologist at Blue Rock. All statements, conclusions, and recommendations are based upon published results from past consultants, field observations by Blue Rock, and analyses performed by a state-certified laboratory as they relate to the time, location, and depth of points sampled by Blue Rock. Interpretation of data, including spatial distribution and temporal trends, are based on commonly used geologic and scientific principles. It is possible that interpretations, conclusions, and recommendations presented in this report may change, as additional data become available and/or regulations change.

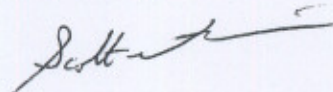
Information and interpretation presented herein are for the sole use of the client and regulating agency. The information and interpretation contained in this document should not be relied upon by a third party.

The service performed by Blue Rock has been conducted in a manner consistent with the level of care and skill ordinarily exercised by members of our profession currently practicing under similar conditions in the area of the site. No other warranty, expressed or implied, is made.

If you have any questions regarding this project, please contact us at (707) 441-1934.

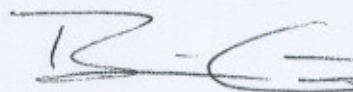
Sincerely,  
Blue Rock Environmental, Inc.

Prepared by:

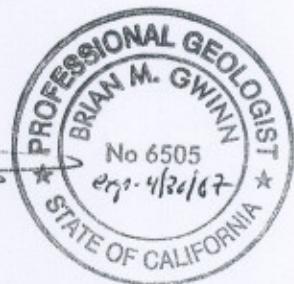


Scott Ferriman  
Project Scientist

Reviewed by:



Brian Gwinn, PG  
Principal Geologist





#### Attachments:

- Table 1: Well Construction Details
- Table 2: Soil Analytical Data
- Table 3: Groundwater Elevations and Analytical Data
- Table 4: Intrinsic Bioremediation Data
- Figure 1: Site Location Map
- Figure 2: Site Plan
- Figure 2a: Cross-Section A-A'
- Figure 2b: Cross-Section B-B'
- Figure 3: Groundwater Flow Direction Rose Diagram
- Figure 4: UST Removal Sample Results – 1/04
- Figure 5: Remedial ORC Placement in Excavation
- Figure 6: Post-Remediation TPHg in Soil – 1/04
- Figure 7a: TPHg in Groundwater Pre-Remediation – 11/03
- Figure 7b: MTBE in Groundwater Pre-Remediation – 11/03
- Figure 8: MTBE in Groundwater Post-Remediation – 11/05
- Chart 1: Dissolved-Phase TPHg Concentrations vs. Time (MW-1)
- Chart 2: Dissolved-Phase TPHg and MTBE Concentrations vs. Time (MW-2)
  
- Historical Boring Logs
- Soil Mass Calculations
- Groundwater Mass Calculations
  
- Receipts for 2,332 tons of soil disposed at BioIndustries in Red Bluff, CA
- Receipts for 13,000 gal of groundwater disposed at Seaport in Redwood City, CA
- Permit from City of Arcata to dispose 10,000 gal of groundwater to sewer

#### Distribution:

- Mr. Clyde Harvey, 1785 Fort Douglas Circle, Salt Lake City, UT 84103
- Mr. Dennis O'Keefe, Golden Gate Petroleum, 501 Shell Ave, Martinez, CA 94553



**Table 1**  
**WELL CONSTRUCTION DETAILS**  
Former Cash Oil Arcata  
421 J Street  
Arcata, California  
Blue Rock Project No. NC-003

Well Identification	Date Installed	Installed by	Casing Diameter (inches)	Total Depth (feet)	Blank Interval (feet)	Screened Interval (feet)	Slot Size (inches)	Filter Pack (feet)	Bentonite Seal (feet)	Cement (feet)
MW-1	8/31/00	Clearwater	2	20	0-3	3-20	0.02	2.5-20	1.5-2.5	0-1.5
(MW-1 was destroyed in 3/04 for installation of the new UST system.)										
MW-2	8/31/00	Clearwater	2	20	0-3	3-20	0.02	2.5-20	1.5-2.5	0-1.5
MW-3	8/31/00	Clearwater	2	20	0-3	3-20	0.02	2.5-20	1.5-2.5	0-1.5
(MW-3 was destroyed in 1/04 for remedial excavation.)										
MW-4	8/31/00	Clearwater	2	20	0-3	3-20	0.02	2.5-20	1.5-2.5	0-1.5
MW-5	11/8/01	Clearwater	2	20	0-3	3-20	0.02	2.5-20	1.5-2.5	0-1.5
MW-6	11/8/01	Clearwater	2	20	0-3	3-20	0.02	2.5-20	1.5-2.5	0-1.5
MW-7	11/8/01	Clearwater	2	20	0-3	3-20	0.02	2.5-20	1.5-2.5	0-1.5



**Table 2**  
**SOIL ANALYTICAL DATA**  
Former Cash Oil Arcata  
421 J Street  
Arcata, California  
Blue Rock Project No. NC-003

Sample ID	Sample Depth (feet bgs)	Sample Date	TPHg (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)	Methanol (mg/kg)	Ethanol (mg/kg)	Lead (mg/kg)
<i>Soil Samples Collected at UST Removal</i>															
SW-1@8'	8	1/15/04	<1	<0.005	<0.005	<0.005	<0.005	0.16	0.022	<0.005	<0.005	<0.005	--	--	8.59
SW-2@8'	8	1/15/04	<1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.025	<0.005	<0.005	<0.005	--	--	--
SW-3@8'	8	1/15/04	2.2	0.15	0.56	0.043	0.21	1.0	<0.025	<0.005	<0.005	<0.005	--	--	--
SW-4@8'	8	1/15/04	6.2	<0.005	<0.005	<0.005	<0.005	0.38	0.64	<0.005	<0.005	<0.005	--	--	4.22
SW-5@8'	8	1/15/04	13	0.24	0.60	0.059	0.094	8.8	0.60	<0.025	<0.025	0.063	--	--	--
SW-6@8'	8	1/15/04	<1	<0.005	<0.005	<0.005	<0.005	0.034	0.017	<0.005	<0.005	<0.005	--	--	7.33
D-1@2.5'	2.5	1/19/04	920	2.2	57	18	99	67	1.9	<0.05	<0.05	<0.05	--	--	--
D-2@2.5'	2.5	1/19/04	44	0.13	0.083	1.5	4.2	1.1	0.38	<0.005	<0.005	0.35	--	--	--
D-3@2.5'	2.5	1/23/04	<1	<0.005	<0.005	<0.005	0.0092	0.11	0.02	<0.005	<0.005	0.0063	--	--	--
D-4@2.5'	2.5	1/23/04	4,700	8.8	120	63	390	41	3.4	<0.25	<0.25	<0.25	--	--	--
P-1@2.5'	2.5	1/20/04	10	0.49	0.085	0.15	0.22	2.1	0.10	<0.005	<0.005	0.14	--	--	--
P-2@2.5'	2.5	1/22/04	4.2	0.083	0.15	0.024	0.49	8.4	0.85	<0.005	<0.005	0.049	--	--	--
<i>Soil Samples Collected to Verify Removal of Impacted Soil During Remedial Excavation</i>															
EX-1	stockpile	1/19/04	53	0.87	6.4	1.2	6.0	8.5	<0.50	<0.005	<0.005	0.066	--	--	--
EX-2	stockpile	1/20/04	36	0.035	0.1	0.081	1.1	1.2	0.28	<0.025	<0.025	0.043	--	--	--
EX-3	stockpile	1/20/04	410	1.0	19	11	55	3.9	0.53	<0.10	<0.10	0.20	--	--	6.23
EX-4	stockpile	1/21/04	110	0.38	0.098	2.3	4.6	2.3	0.55	<0.005	<0.005	0.18	--	--	--
EX-5	stockpile	1/22/04	620	1.1	0.88	9.3	43	7.7	0.47	<0.025	<0.025	0.17	--	--	--
EX-6	stockpile	1/23/04	<1	0.0059	<0.005	<0.005	<0.005	0.24	0.1	<0.005	<0.005	0.0097	--	--	--



**Table 2**  
**SOIL ANALYTICAL DATA**  
Former Cash Oil Arcata  
421 J Street  
Arcata, California  
Blue Rock Project No. NC-003

Sample ID	Sample Depth (feet bgs)	Sample Date	TPHg (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)	Methanol (mg/kg)	Ethanol (mg/kg)	Lead (mg/kg)
<i>Confirmation Samples Collected from Sidewalls and Bottom of Remedial Excavation</i>															
EB-1@12'	12	1/20/04	<1	<0.005	<0.005	<0.005	<0.005	1.7	--	--	--	--	--	--	--
EB-2@7'	7	1/23/04	<1	<0.005	<0.005	<0.005	<0.005	0.098	--	--	--	--	--	--	--
EB-3@12'	12	1/23/04	<1	<0.005	<0.005	<0.005	<0.005	0.64	--	--	--	--	--	--	--
ES-1@8'	8	1/20/04	<1	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--
ES-2@8'	8	1/26/04	1.4	<0.005	<0.005	<0.005	<0.005	0.13	--	--	--	--	--	--	--
ES-3@8'	8	1/26/04	1.5	0.014	0.079	0.01	0.072	0.19	--	--	--	--	--	--	--
ES-4@8'	8	1/26/04	17	0.24	<0.025	0.51	0.99	1.8	--	--	--	--	--	--	--
ES-5@8'	8	1/26/04	5.8	0.077	0.012	0.071	0.18	0.27	--	--	--	--	--	--	--
ES-6@7'	7	1/26/04	<1	<0.005	<0.005	<0.005	<0.01	<0.005	--	--	--	--	--	--	--
ES-7@7'	7	1/26/04	1.3	<0.005	<0.005	<0.005	<0.01	<0.005	--	--	--	--	--	--	--



**Table 2**  
**SOIL ANALYTICAL DATA**  
Former Cash Oil Arcata  
421 J Street  
Arcata, California  
Blue Rock Project No. NC-003

Sample ID	Sample Depth (feet bgs)	Sample Date	TPHg (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)	Methanol (mg/kg)	Ethanol (mg/kg)	Lead (mg/kg)
<i>Historical Investigation Soil Samples</i>															
B-1	10	5/7/97	27	0.057	0.15	1.4	2.7	<1.3	--	--	--	--	--	--	--
B-2	10	5/7/97	1.0	<0.005	0.0066	0.0079	0.009	0.084	--	--	--	--	--	--	--
B-3	4	12/2/99	<1	<0.005	<0.005	<0.005	<0.005	0.091	--	--	--	--	--	--	--
B-6	4	12/2/99	3.6	<0.005	<0.005	<0.005	0.0051	0.01	<0.5	<0.02	<0.02	<0.02	--	--	--
B-7	3.5	12/2/99	<1	<0.005	<0.005	<0.005	<0.005	0.023	<0.5	<0.02	<0.02	<0.02	--	--	--
B-8	4	12/2/99	<1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.5	<0.02	<0.02	<0.02	--	--	--
B-9	4	12/2/99	3.5	0.013	<0.005	<0.005	0.037	1.1	<0.5	<0.02	<0.02	<0.02	--	--	--
B-10	4	12/2/99	<1	<0.005	<0.005	<0.005	<0.005	0.61	<0.5	<0.02	<0.02	0.025	--	--	--
B-11	5	8/31/00	1.1	0.0052	<0.005	<0.005	<0.005	0.083	<0.005	<0.005	<0.005	<0.005	<0.02	<0.01	--
B-11	10	8/31/00	<1	<0.005	<0.005	<0.005	<0.005	0.14	<0.005	<0.005	<0.005	<0.005	<0.02	<0.01	--
MW-1	5	8/31/00	<1	<0.005	<0.005	<0.005	<0.05	0.018	0.0072	<0.005	<0.005	<0.005	<0.02	<0.01	--
MW-1	10	8/31/00	<1	<0.005	<0.005	<0.005	<0.005	0.025	<0.005	<0.005	<0.005	<0.005	<0.02	<0.01	--
MW-2	5	8/31/00	<1	<0.005	<0.005	<0.005	<0.005	0.60	0.034	<0.005	<0.005	0.0095	<0.8	0.03	--
MW-2	10	8/31/00	<1	<0.005	<0.005	<0.005	<0.005	0.62	0.014	<0.005	<0.005	0.01	<0.8	<0.01	--
MW-3	5	8/31/00	13	0.21	0.0062	0.099	0.026	5.9	1.2	<0.005	<0.005	0.21	<1	<0.05	--
MW-3	10	8/31/00	<1	<0.005	<0.005	<0.005	<0.005	1.6	0.86	<0.005	<0.005	0.11	<0.5	<0.02	--
MW-4	5	8/31/00	<1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.2	<0.01	--
MW-4	10	8/31/00	<1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.2	<0.01	--
MW-5	5	11/8/01	<1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.2	<0.01	--
MW-5	10	11/8/01	<1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.2	<0.02	--
MW-5	15	11/8/01	<1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.2	<0.02	--
MW-6	10	11/8/01	<1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.4	<0.02	--
MW-6	15	11/8/01	<1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.4	<0.02	--
MW-7	10	11/8/01	<1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.2	<0.01	--
MW-7	15	11/8/01	<1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.2	<0.02	--

**Notes**

bgs: below ground surface

"--" Not analyzed, available or applicable

mg/kg = milligrams per kilogram

<###: Not detected above the method detection limit as shown

TPHg: Total petroleum hydrocarbons as gasoline by EPA Method 5030/8260B

BTEX by EPA Method 8260B

MTBE: Methyl tertiary butyl ether by EPA 8260B

TBA: Tertiary butanol by EPA 8260B

DIPE: Di isopropyl ether by EPA 8260B

ETBE: Ethyl tertiary butyl ether by EPA 8260B

TAME: Tertiary amyl methyl ether by EPA 8260B

Methanol: by EPA Method 8260B

Ethanol: by EPA method 8260B

Lead: Total Lead by EPA method 6010B



**Table 3**  
**GROUNDWATER ELEVATIONS**  
**AND ANALYTICAL DATA**  
Former Cash Oil Arcata  
421 J Street  
Arcata, California  
Blue Rock Project No. NC-003

Well Name	Sample Date	TOC (feet)	DTW (feet)	SPH (feet)	GWE (feet)	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Methanol (µg/L)	Ethanol (µg/L)	Lead (µg/L)	DO (mg/L)
<i>Grab Groundwater Samples</i>																			
B-1	5/7/97	---	---	0.00	---	9,900	880	52	650	690	100,000	---	---	---	---	---	---	---	---
B-2	5/7/97	---	---	0.00	---	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<10	<1	<1	<1	---	---	---	---
B-6	12/2/99	---	~4.5	0.00	---	550	0.84	0.52	<0.5	<0.5	190	<10	<1	<1	11	---	---	---	---
B-7	12/2/99	---	~4	0.00	---	<250	<1	<1	<1	<1	1,200	<50	<2.5	<2.5	13	---	---	---	---
B-8	12/2/99	---	~4.5	0.00	---	<50	<0.5	<0.5	<0.5	<0.5	3.3	<10	<1	<1	<1	---	---	---	---
B-9	12/2/99	---	~5	0.00	---	2,600	39	<10	<10	<10	12,000	1,200	<25	<25	220	---	---	---	---
B-10	12/2/99	---	~5	0.00	---	2,600	<10	<10	<10	<10	13,000	780	<25	<25	380	---	---	---	---
B-11	8/31/00	---	~11	0.00	---	54	<0.5	<0.5	<0.5	1.3	340	<5	<0.5	<0.5	4.9	<100	<10	---	---
Pit Water	1/15/04	---	---	sheen	---	42,000	740	5,900	1,200	4,600	13,000	2,000	<25	<25	57	---	---	---	---
Pit Water	1/20/04	---	---	0.00	---	16,000	95	610	270	840	4,300	---	---	---	---	---	---	16	---
Water Tank	3/19/04	---	---	0.00	---	140	<0.5	<0.5	<0.5	<1	180	---	---	---	---	---	---	---	---
<i>Monitoring Well Groundwater Samples</i>																			
MW-1	9/11/00	98.70	6.11	0.00	92.59	<50	<0.3	<0.3	<0.3	<0.6	28.2	<500	<0.5	<0.5	<0.5	---	---	---	---
	10/16/00	98.70	6.11	0.00	92.59	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Screen	11/16/00	98.70	4.73	0.00	93.97	---	---	---	---	---	---	---	---	---	---	---	---	---	---
3'-20'	12/12/00	98.70	4.60	0.00	94.10	<50	<0.3	<0.3	<0.3	<0.6	87	<500	<0.5	<0.5	22	---	---	---	---
	1/22/01	98.70	4.99	0.00	93.71	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	2/16/01	98.70	4.70	0.00	94.00	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	3/8/01	98.70	4.53	0.00	94.17	120	<0.5	<0.5	<0.5	44	42	<5	<0.5	<0.5	9	<50	<5	---	---
	6/6/01	98.70	5.51	0.00	93.19	<50	<0.5	<0.5	<0.5	<0.5	37	8.7	<0.5	<0.5	2.5	<200	<5	---	---
	9/4/01	98.70	6.37	0.00	92.33	<50	<0.5	<0.5	<0.5	<0.5	61	<5	<0.5	<0.5	2.3	---	---	---	---
	11/16/01	12.81	4.18	0.00	8.63	<50	<0.5	<0.5	<0.5	<0.5	15	<5	<0.5	<0.5	1.8	<100	<5	---	---
	2/8/02	12.81	3.98	0.00	8.83	<50	<0.5	<0.5	<0.5	<0.5	40	9.4	<0.5	<0.5	3.4	---	---	---	---
	5/3/02	12.81	4.53	0.00	8.28	<50	<0.5	<0.5	<0.5	<0.5	11	8.8	<0.5	<0.5	1.1	---	---	---	---
	8/29/02	16.19	6.26	0.00	9.93	<50	<0.5	<0.5	<0.5	<0.5	17	16	<0.5	<0.5	1.4	---	---	---	---
	11/14/02	16.19	5.95	0.00	10.24	<50	<0.5	<0.5	<0.5	<0.5	11	<5	<0.5	<0.5	1.2	---	---	---	---
	2/11/03	16.19	4.54	0.00	11.65	<50	<0.5	<0.5	<0.5	<0.5	8.2	10	<0.5	<0.5	0.9	---	---	---	---
	5/7/03	16.19	4.07	0.00	12.12	<50	<0.5	<0.5	<0.5	<0.5	9.1	13	<0.5	<0.5	0.76	---	---	---	---
	8/4/03	16.19	5.80	0.00	10.39	<50	<0.5	<0.5	<0.5	<0.5	6.4	10	<0.5	<0.5	0.81	---	---	---	---
	11/3/03	16.19	6.54	0.00	9.65	<50	<0.5	<0.5	<0.5	<0.5	8.3	<5	<0.5	<0.5	0.72	---	---	---	---
	3/8/04	16.19	4.04	0.00	12.15	<50	<0.5	<0.5	<0.5	<0.5	20	<5	<0.5	<0.5	<0.5	---	---	---	0.25
	3/18/04	MW-1 was destroyed during new UST system installation activities.																	



**Table 3**  
**GROUNDWATER ELEVATIONS**  
**AND ANALYTICAL DATA**  
Former Cash Oil Arcata  
421 J Street  
Arcata, California  
Blue Rock Project No. NC-003

Well Name	Sample Date	TOC (feet)	DTW (feet)	SPH (feet)	GWE (feet)	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Methanol (µg/L)	Ethanol (µg/L)	Lead (µg/L)	DO (mg/L)
MW-2 Screen 3'-20'	9/11/00	98.10	5.19	0.00	92.91	1,120	<0.3	<0.3	<0.3	<0.6	3,130	<500	<0.5	<0.5	40.3	---	---	---	---
	10/16/00	98.10	5.21	0.00	92.89	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	11/16/00	98.10	3.87	0.00	94.23	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	12/12/00	98.10	4.88	0.00	93.22	423	<0.3	<0.3	<0.3	<0.6	2,020	<500	<0.5	<0.5	<0.5	---	---	---	---
	1/22/01	98.10	4.21	0.00	93.89	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	2/16/01	98.10	4.01	0.00	94.09	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	3/8/01	98.10	3.92	0.00	94.18	<200	<2	<2	<2	<2	1,400	<20	<2	<2	18	<500	<20	---	---
	6/6/01	98.10	4.74	0.00	93.36	<500	<5	<5	<5	<5	1,200	<50	<5	<5	20	6,000	<50	---	---
	9/4/01	98.10	5.64	0.00	92.46	<50	<0.5	<0.5	<0.5	<0.5	1,100	100	<0.5	<0.5	17	---	---	---	---
	11/16/01	12.23	3.85	0.00	8.38	<100	<1	<1	<1	<1	710	18	<1	<1	12	<2,000	<10	---	---
	2/8/02	12.23	3.46	0.00	8.77	1,300	19	<10	<10	<10	3,600	140	<10	<10	100	---	---	---	---
	5/3/02	12.23	3.93	0.00	8.30	<1,000	<10	<10	<10	<10	4,300	250	<10	<10	150	---	---	---	---
	8/29/02	15.61	5.55	0.00	10.06	<1,000	<10	<10	<10	<10	3,100	<100	<10	<10	87	---	---	---	---
	11/14/02	15.61	5.24	0.00	10.37	220	<1	<1	<1	<1	2,200	16	<1	<1	67	---	---	---	---
	2/11/03	15.61	3.97	0.00	11.64	<1,000	11	<10	<10	<10	4,400	170	<10	<10	160	---	---	---	---
	5/7/03	15.61	3.53	0.00	12.08	<1,000	<10	<10	<10	<10	4,200	210	<10	<10	170	---	---	---	---
	8/4/03	15.61	5.05	0.00	10.56	<500	<5	<5	<5	<5	2,100	<50	<5	<5	64	---	---	---	---
	11/3/03	15.61	6.02	0.00	9.59	<500	<5	<5	<5	<5	1,800	<50	<5	<5	58	---	---	---	---
	3/8/04	15.61	3.87	0.00	11.74	<1,000	<10	<10	<10	<10	4,200	150	<10	<10	150	---	---	---	0.52
	5/17/04	15.61	4.62	0.00	10.99	<1,000	<10	<10	<10	<20	940	<100	<10	<10	34	---	---	---	0.76
	8/2/04	15.61	5.31	0.00	10.30	<200	<2	<2	<2	<2	1,000	---	---	---	---	---	---	---	1.53
	11/1/04	15.61	4.17	0.00	11.44	<200	<1.5	<1.5	<1.5	<1.5	700	---	---	---	---	---	---	---	1.19
	2/3/05	15.61	3.78	0.00	11.83	<200	<1.5	<1.5	<1.5	<1.5	1,100	---	---	---	---	---	---	---	1.90
	5/2/05	15.61	4.10	0.00	11.51	<150	<1.5	<1.5	<1.5	<1.5	820	---	---	---	---	---	---	---	0.57
	8/3/05	15.61	4.78	0.00	10.83	<50	<0.5	<0.5	<0.5	<0.5	370	---	---	---	---	---	---	---	0.85
	11/4/05	15.61	4.01	0.00	11.60	<50	<0.5	<0.5	<0.5	<0.5	360	---	---	---	---	---	---	---	1.34
MW-3 Screen 3'-20'	9/11/00	99.58	5.39	0.00	94.19	6,390	186	5	10.4	10.7	12,500	<500	<0.5	<0.5	1,150	---	---	---	---
	10/16/00	99.58	6.36	0.00	93.22	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	11/16/00	99.58	4.84	0.00	94.74	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	12/12/00	99.58	4.76	0.00	94.82	29,200	499	<150	<150	<300	41,100	<250,000	<250	<250	2,280	---	---	---	---
	1/22/01	99.58	5.27	0.00	94.31	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	2/16/01	99.58	4.91	0.00	94.67	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	3/8/01	99.58	4.79	0.00	94.79	3,100	230	130	35	62	6,900	2,100	<10	<10	290	<10,000	<200	---	---
	6/6/01	99.58	5.93	0.00	93.65	<5,000	190	<25	<25	<25	16,000	5,000	<25	<25	530	<10,000	<1,000	---	---
	9/4/01	99.58	6.84	0.00	92.74	4,700	230	100	25	88	16,000	7,000	<20	<20	990	---	---	---	---
	11/16/01	13.70	4.55	0.00	9.15	10,000	720	590	250	970	22,000	4,200	<50	<50	1,200	<120,000	<500	---	---
	2/8/02	13.70	3.90	0.00	9.80	4,200	170	26	54	75	6,000	920	<20	<20	260	---	---	---	---
	5/3/02	13.70	4.62	0.00	9.08	2,700	110	<20	26	22	9,500	3,400	<20	<20	790	---	---	---	---



**Table 3**  
**GROUNDWATER ELEVATIONS**  
**AND ANALYTICAL DATA**  
Former Cash Oil Arcata  
421 J Street  
Arcata, California  
Blue Rock Project No. NC-003

Well Name	Sample Date	TOC (feet)	DTW (feet)	SPH (feet)	GWE (feet)	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Methanol (µg/L)	Ethanol (µg/L)	Lead (µg/L)	DO (mg/L)
MW-3  Screen 3'-20'	8/29/02	17.08	6.74	0.00	10.34	1,800	80	<10	<10	<10	4,700	1,200	<10	<10	540	---	---	---	---
	11/14/02	17.08	6.38	0.00	10.70	4,300	120	<20	<20	<20	8,600	1,800	<20	<20	1,400	---	---	---	---
	2/11/03	17.08	4.73	0.00	12.35	4,500	200	<20	27	<20	11,000	2,800	<20	<20	760	---	---	---	---
	5/7/03	17.08	4.15	0.00	12.93	2,800	120	<20	26	26	5,700	1,200	<20	<20	430	---	---	---	---
	8/4/03	17.08	6.25	0.00	10.83	1,900	79	<10	<10	<10	5,500	1,500	<10	<10	420	---	---	---	---
	11/3/03	17.08	6.88	0.00	10.20	1,900	75	<10	<10	<10	4,600	1,500	<10	<10	380	---	---	---	---
	1/20/04	Removed during remedial soil excavation activities																	
MW-4  Screen 3'-20'	9/11/00	100.50	7.07	0.00	93.43	<50	0.4	<0.3	<0.3	<0.6	<10	<500	<0.5	<0.5	3.7	---	---	---	---
	10/16/00	100.50	7.97	0.00	92.53	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	11/16/00	100.50	5.45	0.00	95.05	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	12/12/00	100.50	6.08	0.00	94.42	<50	<0.3	<0.3	<0.3	<0.6	2	<500	<0.5	<0.5	<0.5	---	---	---	---
	1/22/01	100.50	5.79	0.00	94.71	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	2/16/01	100.50	5.29	0.00	95.21	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	3/8/01	100.50	5.22	0.00	95.28	<50	<0.5	<0.5	<0.5	<0.5	0.94	<5	<0.5	<0.5	<0.5	<50	<5	---	---
	6/6/01	100.50	6.52	0.00	93.98	<50	<0.5	<0.5	<0.5	<0.5	0.57	<5	<0.5	<0.5	<0.5	<50	<5	---	---
	9/4/01	100.50	7.56	0.00	92.94	<50	<0.5	<0.5	<0.5	<0.5	0.78	<5	<0.5	<0.5	<0.5	---	---	---	---
	11/16/01	14.59	4.96	0.00	9.63	<50	<0.5	<0.5	<0.5	<0.5	0.58	<5	<0.5	<0.5	<0.5	<50	<5	---	---
	2/8/02	14.59	4.74	0.00	9.85	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---	---
	5/3/02	14.59	5.04	0.00	9.55	<50	<0.5	<0.5	<0.5	<0.5	1.3	<5	<0.5	<0.5	<0.5	---	---	---	---
	8/29/02	17.97	7.42	0.00	10.55	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---	---
	11/14/02	17.97	7.02	0.00	10.95	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---	---
	2/11/03	17.97	5.11	0.00	12.86	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---	---
	5/7/03	17.97	4.53	0.00	13.44	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---	---
	8/4/03	17.97	6.94	0.00	11.03	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---	---
	11/3/03	17.97	7.61	0.00	10.36	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---	---
	3/8/04	17.97	5.04	0.00	12.93	<50	<0.5	<0.5	<0.5	<0.5	3.9	<5	<0.5	<0.5	<0.5	---	---	---	0.12
	5/17/04	17.97	6.73	0.00	11.24	<50	<0.5	<0.5	<0.5	<0.5	5.2	<5	<0.5	<0.5	<0.5	---	---	---	0.84
	8/2/04	17.97	6.89	0.00	11.08	<50	<0.5	<0.5	<0.5	<0.5	43	---	---	---	---	---	---	---	1.99
	11/1/04	17.97	5.66	0.00	12.31	<50	<0.5	<0.5	<0.5	<0.5	2.8	---	---	---	---	---	---	---	1.38
	2/3/05	17.97	5.01	0.00	12.96	<50	<0.5	<0.5	<0.5	<0.5	1.0	---	---	---	---	---	---	---	1.92
	5/2/05	17.97	5.59	0.00	12.38	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---	---	---	0.52
	8/3/05	17.97	6.52	0.00	11.45	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---	---	---	0.88
	11/4/05	17.97	5.74	0.00	12.23	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---	---	---	0.89
MW-5  Screen 3'-20'	11/16/01	12.27	5.18	0.00	7.09	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<50	<5	---	---
	2/8/02	12.27	4.39	0.00	7.88	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---	---
	5/3/02	12.27	4.56	0.00	7.71	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---	---
	8/29/02	15.64	5.97	0.00	9.67	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---	---



Table 3  
GROUNDWATER ELEVATIONS  
AND ANALYTICAL DATA  
Former Cash Oil Arcata  
421 J Street  
Arcata, California  
Blue Rock Project No. NC-003

Well Name	Sample Date	TOC (feet)	DTW (feet)	SPH (feet)	GWE (feet)	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Methanol (µg/L)	Ethanol (µg/L)	Lead (µg/L)	DO (mg/L)
MW-5 Screen 3'-20'	11/14/02	15.64	5.80	0.00	9.84	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---	---
	2/11/03	15.64	4.59	0.00	11.05	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---	---
	5/7/03	15.64	4.33	0.00	11.31	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---	---
	8/4/03	15.64	5.48	0.00	10.16	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---	---
	11/3/03	15.64	6.57	0.00	9.07	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---	---
	3/8/04	15.64	4.49	0.00	11.15	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---	0.38
	5/17/04	15.64	4.98	0.00	10.66	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---	0.78
	8/2/04	15.64	5.69	0.00	9.95	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---	---	---	1.89
	11/1/04	15.64	4.86	0.00	10.78	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---	---	---	1.36
	2/3/05	15.64	4.60	0.00	11.04	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---	---	---	2.29
	5/2/05	15.64	4.64	0.00	11.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---	---	---	0.67
	8/3/05	15.64	5.22	0.00	10.42	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---	---	---	1.14
	11/4/05	15.64	4.93	0.00	10.71	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---	---	---	0.79
MW-6 Screen 3'-20'	11/16/01	11.41	4.51	0.00	6.90	<50	<0.5	<0.5	<0.5	<0.5	<b>0.90</b>	<5	<0.5	<0.5	<0.5	<50	<5	---	---
	2/8/02	11.41	4.15	0.00	7.26	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---	---
	5/3/02	11.41	4.13	0.00	7.28	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---	---
	8/29/02	14.78	5.36	0.00	9.42	<50	<0.5	<0.5	<0.5	<0.5	<b>0.68</b>	<5	<0.5	<0.5	<0.5	---	---	---	---
	11/14/02	14.78	5.19	0.00	9.59	<50	<0.5	<0.5	<0.5	<0.5	<b>1.0</b>	<5	<0.5	<0.5	<0.5	---	---	---	---
	2/11/03	14.78	4.16	0.00	10.62	<50	<0.5	<0.5	<0.5	<0.5	<b>0.80</b>	<5	<0.5	<0.5	<0.5	---	---	---	---
	5/7/03	14.78	3.90	0.00	10.88	<50	<0.5	<0.5	<0.5	<0.5	<b>0.60</b>	<5	<0.5	<0.5	<0.5	---	---	---	---
	8/4/03	14.78	4.90	0.00	9.88	<50	<0.5	<0.5	<0.5	<0.5	<b>0.65</b>	<5	<0.5	<0.5	<0.5	---	---	---	---
	11/3/03	14.78	6.11	0.00	8.67	<50	<0.5	<0.5	<0.5	<0.5	<b>1.5</b>	<5	<0.5	<0.5	<0.5	---	---	---	---
	3/8/04	14.78	4.08	0.00	10.70	<50	<0.5	<0.5	<0.5	<0.5	<b>0.51</b>	<5	<0.5	<0.5	<0.5	---	---	---	0.12
	5/17/04	14.78	4.42	0.00	10.36	<50	<0.5	<0.5	<0.5	<0.5	<b>0.60</b>	<5	<0.5	<0.5	<0.5	---	---	---	0.80
	8/2/04	14.78	5.07	0.00	9.71	<50	<0.5	<0.5	<0.5	<0.5	<b>0.72</b>	---	---	---	---	---	---	---	1.73
	11/1/04	14.78	4.32	0.00	10.46	<50	<0.5	<0.5	<0.5	<0.5	<b>2.3</b>	---	---	---	---	---	---	---	1.23
	2/3/05	14.78	4.15	0.00	10.63	<50	<0.5	<0.5	<0.5	<0.5	<b>0.68</b>	---	---	---	---	---	---	---	2.34
	5/2/05	14.78	4.19	0.00	10.59	<50	<0.5	<0.5	<0.5	<0.5	<b>0.56</b>	---	---	---	---	---	---	---	0.61
	8/3/05	14.78	4.60	0.00	10.18	<50	<0.5	<0.5	<0.5	<0.5	<b>0.62</b>	---	---	---	---	---	---	---	0.49
	11/4/05	14.78	4.34	0.00	10.44	<50	<0.5	<0.5	<0.5	<0.5	<b>1.0</b>	---	---	---	---	---	---	---	1.20



**Table 3**  
**GROUNDWATER ELEVATIONS**  
**AND ANALYTICAL DATA**  
Former Cash Oil Arcata  
421 J Street  
Arcata, California  
Blue Rock Project No. NC-003

Well Name	Sample Date	TOC (feet)	DTW (feet)	SPH (feet)	GWE (feet)	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Methanol (µg/L)	Ethanol (µg/L)	Lead (µg/L)	DO (mg/L)
MW-7	11/16/01	11.91	5.19	0.00	6.72	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<50	<5	---	---
	2/8/02	11.91	4.67	0.00	7.24	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---	---
Screen	5/3/02	11.91	5.06	0.00	6.85	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---	---
3'-20'	8/29/02	15.28	6.20	0.00	9.08	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---	---
	11/14/02	15.28	5.83	0.00	9.45	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---	---
	2/11/03	15.28	5.12	0.00	10.16	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---	---
	5/7/03	15.28	4.75	0.00	10.53	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---	---
	8/4/03	15.28	5.77	0.00	9.51	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---	---
	11/3/03	15.28	6.84	0.00	8.44	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---	---
	3/8/04	15.28	4.96	0.00	10.32	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---	0.15
	5/17/04	15.28	5.23	0.00	10.05	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	---	---	---	0.69
	8/2/04	15.28	6.06	0.00	9.22	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---	---	---	1.64
	11/1/04	15.28	5.26	0.00	10.02	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---	---	---	1.28
	2/3/05	15.28	4.97	0.00	10.31	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---	---	---	2.31
	5/2/05	15.28	5.01	0.00	10.27	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---	---	---	0.58
	8/3/05	15.28	5.50	0.00	9.78	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---	---	---	0.55
	11/4/05	15.28	5.07	0.00	10.21	<50	<0.5	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---	---	---	0.49
MCL						---	1	150	300	1,750	13								
Taste & odor threshold						5	---	42	29	17	---								
NCRWQCB Cleanup Goals						<50	0.5	42	29	17	5								

Notes :

TOC: Top of well casing surveyed to established benchmark.

DTW: Depth to water as referenced to top of casing.

SPH: Separate phase hydrocarbon on top of groundwater.

GWE: Groundwater elevation as referenced to benchmark.

µg/L = micrograms per liter = parts per billion = ppb

MCL: maximum contaminant level, a Federal drinking water standard

<###: Not detected in concentrations exceeding the indicated laboratory detection limit

DO: Dissolved oxygen collected using YSI meter (downhole measurement)

TPHg: Total petroleum hydrocarbons as gasoline by Method 5030/8260B

MTBE: Methyl tertiary butyl ether by Method 8260B

TBA: Tertiary butyl alcohol by Method 8260B

DIPE: Di isopropyl ether by Method 8260B

ETBE: Ethyl tertiary butyl ether by Method 8260B

TAME: Tertiary amyl methyl ether by Method 8260B

Lead: Dissolved lead by EPA Method 200.9

NCRWQCB: North Coast Region Water Quality Control Board



**Table 4**  
**INTRINSIC BIOREMEDIATION DATA**  
Former Cash Oil Arcata  
421 J Street  
Arcata, California  
Blue Rock Project No. NC-3

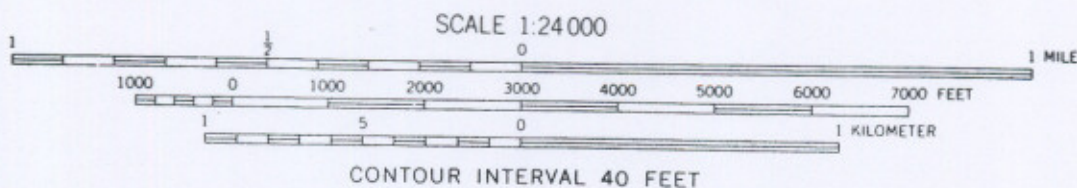
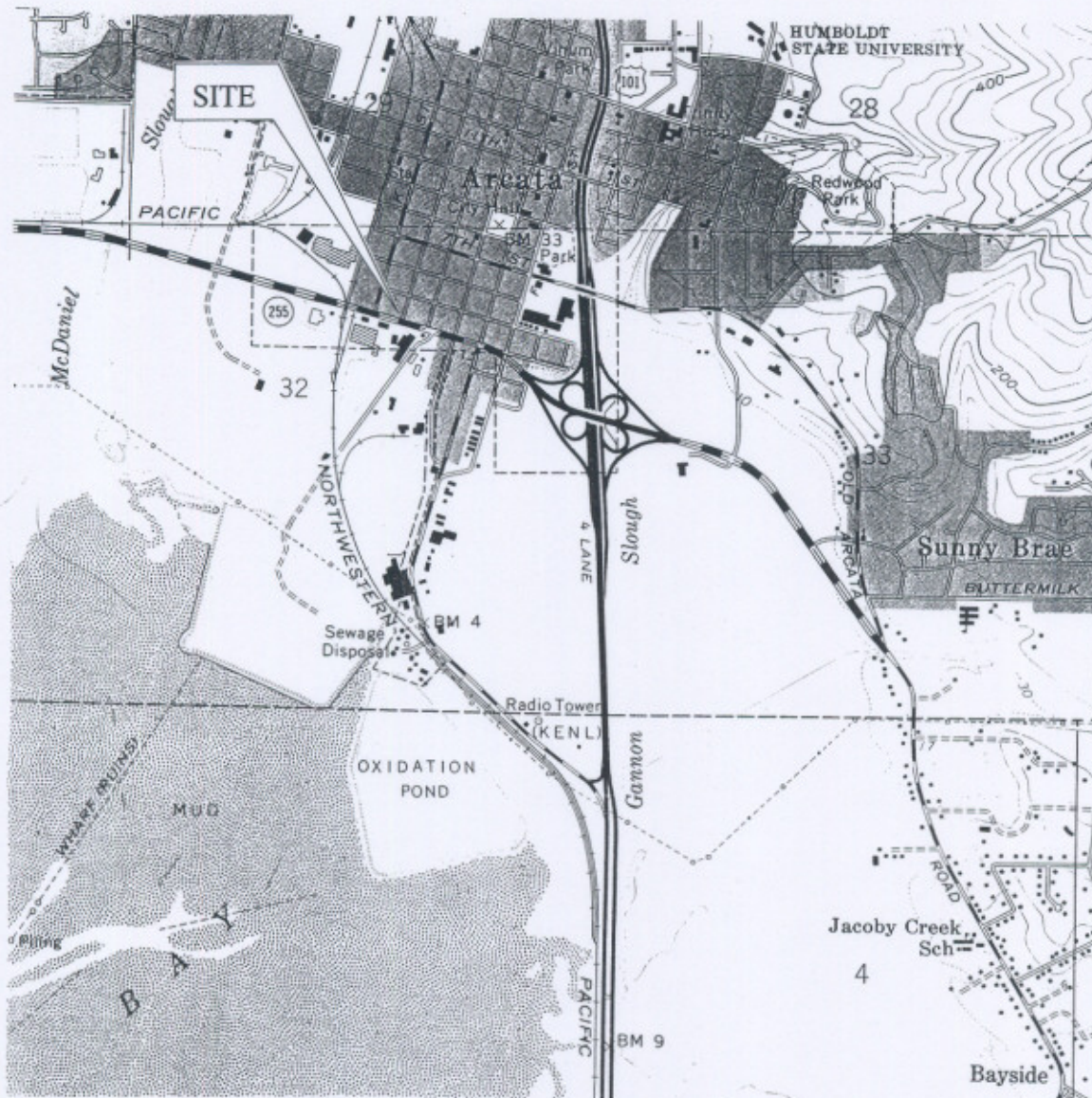
Well No.	Date	TPHg (µg/L)	MTBE (µg/L)	DO* (mg/L)	pH*	Groundwater		Nitrate (mg/L)	Ammonia (mg/L)	Sulfate (mg/L)	Ortho Phosphate (mg/L)	Ferrous Iron (mg/L)	TOC (mg/L)	COD (mg/L)	BOD (mg/L)	Heterotrophic	
						Temperature (deg. C)	Total Alkalinity (mg/L)									Plate Count (CFU/mL)	Aerobic Hydrocarbon Degraders (CFU/mL)
MW-1	8/29/02	<50	17	2.31	6.6	18.9	--	--	--	--	--	--	--	--	--	--	--
	11/14/02	<50	11	3.37	5.5	16.7	--	--	--	--	--	--	--	--	--	--	--
MW-2	8/29/02	<1,000	3,100	2.10	6.2	18.1	300	0.63	0.52	1.1	<0.5	0.57	9.1	37	<3	500	600
	11/14/02	220	2,200	3.21	5.9	17.6	280	0.77	0.28	1.5	<0.5	0.66	5	30	<3	5,000	2,000
MW-3	8/29/02	1,800	4,700	1.91	6.3	17.9	210	0.74	1.2	<0.5	<0.5	4.3	26	72	<3	500	300
	11/14/02	4,300	8,600	2.92	6.0	17.1	280	0.75	0.79	<0.5	<0.5	5.8	8.2	51	8.4	2,000	200
MW-4	8/29/02	<50	<0.5	2.38	6.2	17.7	140	0.71	0.5	12	<0.5	0.42	5.1	17	<3	3,000	2,000
	11/14/02	<50	<0.5	3.46	6.7	14.5	150	0.79	0.15	16	<0.5	1.6	11.0	23	<3	10,000	5,000
MW-5	8/29/02	<50	<0.5	4.20	7.3	17.7	--	--	--	--	--	--	--	--	--	--	--
	11/14/02	<50	<0.5	3.03	6.7	14.8	--	--	--	--	--	--	--	--	--	--	--
MW-6	8/29/02	<50	0.68	2.88	6.0	17.3	540	0.64	0.6	0.74	<0.5	4.8	10	34	84	1,000	600
	11/14/02	<50	1.0	2.66	5.8	16.2	530	0.75	0.4	1.2	<0.5	4.8	<10	32	14	60,000	3,000
MW-7	8/29/02	<50	<0.5	3.12	5.7	17.9	--	--	--	--	--	--	--	--	--	--	--
	11/14/02	<50	<0.5	2.79	6.4	16.1	--	--	--	--	--	--	--	--	--	--	--

Notes:

TPHg Total Petroleum Hydrocarbons as gasoline by EPA Method 5030/8260B  
MTBE Methyl Tert-Butyl Ether by EPA Method 8260B  
µg/L micrograms per liter, equivalent to parts per billion - ppb  
mg/L milligrams per liter, equivalent to parts per million - ppm  
\* Parameters measured in field and recorded on field sheets  
<### Not detected above the number indicated  
CFU/mL Colony forming units per milliliter  
DO Dissolved oxygen measured with downhole meter  
pH pH measured with field meter  
Temperature measured with field meter in degrees Celsius  
Alkalinity by EPA Method 310.1  
Nitrate by EPA Method 353.3

Ammonia by EPA Method 350.2  
Sulfate by EPA Method 375.4  
Phosphate by EPA Method 365.2  
TOC Total organic carbon by EPA Method 9060  
Ferrous Iron by Standard Method 3500  
BOD Biological Oxygen Demand by Standard Method 5210B  
COD Chemical Oxygen Demand by EPA Method 410.4  
Heterotrophic Plate Count Bacteria enumeration assay by Standard Method 9215B modified  
Hydrocarbon Degraders Bacteria enumeration assay for diesel and gasoline degraders  
"--": Not analyzed, available, or applicable





QUADRANGLE LOCATION

MAP SOURCE: USGS Arcata South  
Quadrangle



## Site Location Map

Former Cash Oil Arcata  
421 J Street  
Arcata, California



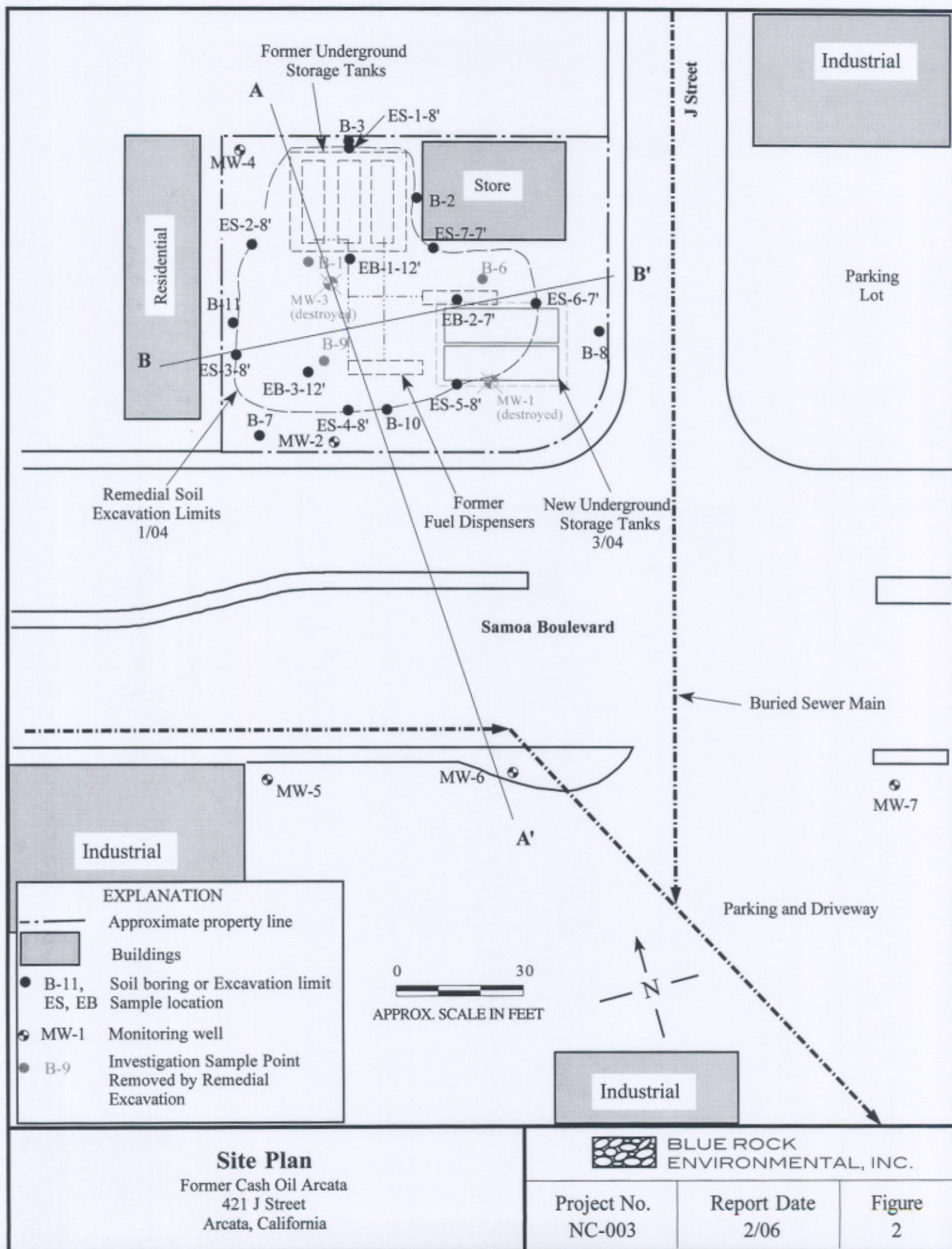
BLUE ROCK  
ENVIRONMENTAL, INC.

Project No.  
NC-003

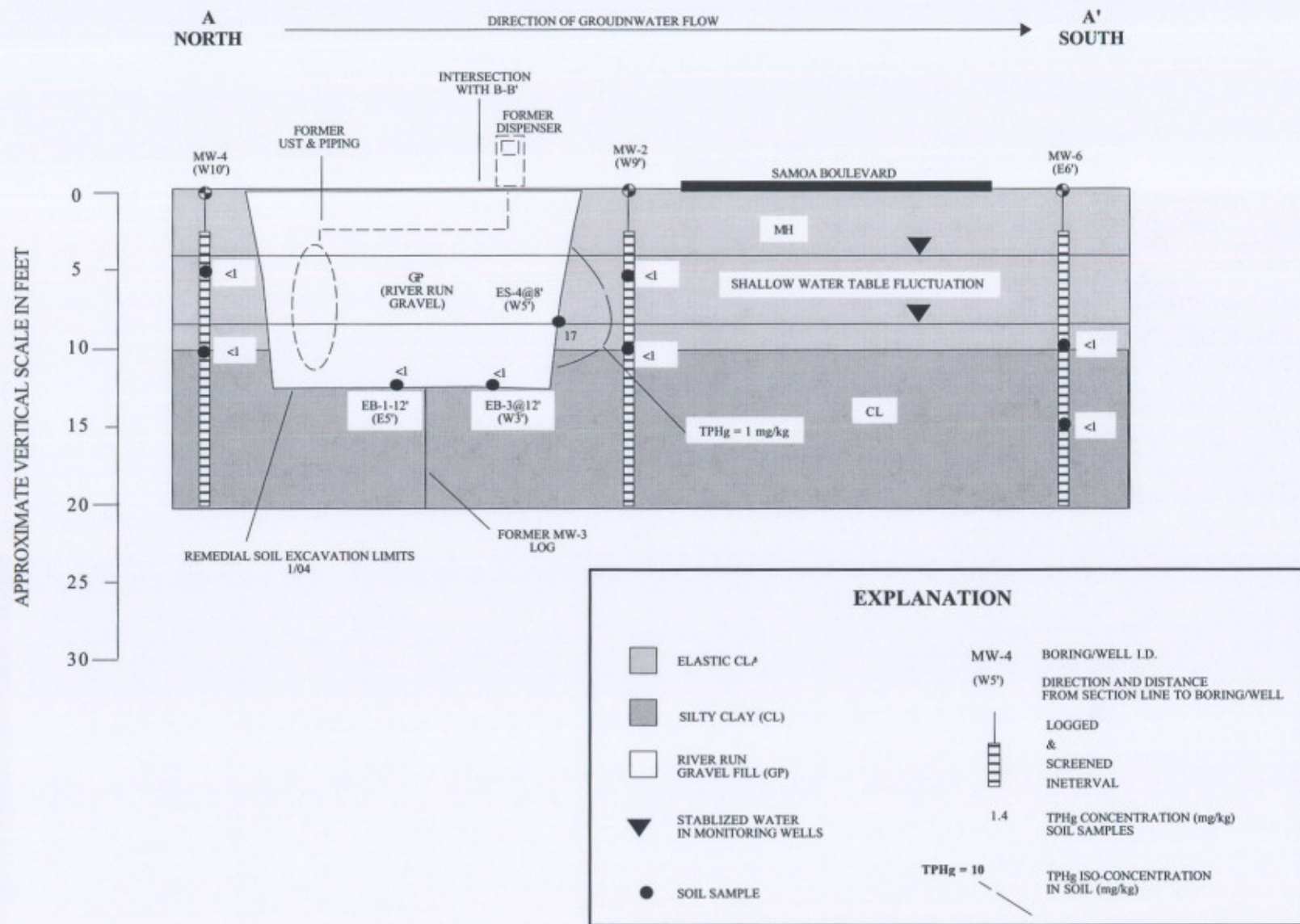
Date  
4/04

Figure  
1









0' 30'

10'

**APPROXIMATE SCALE**  
HORIZONTAL SCALE: 1"=30'  
VERTICAL SCALE: 1"=10'

**Cross-Section A-A'**  
Former Cash Oil Arcata  
421 J Street  
Arcata, CA



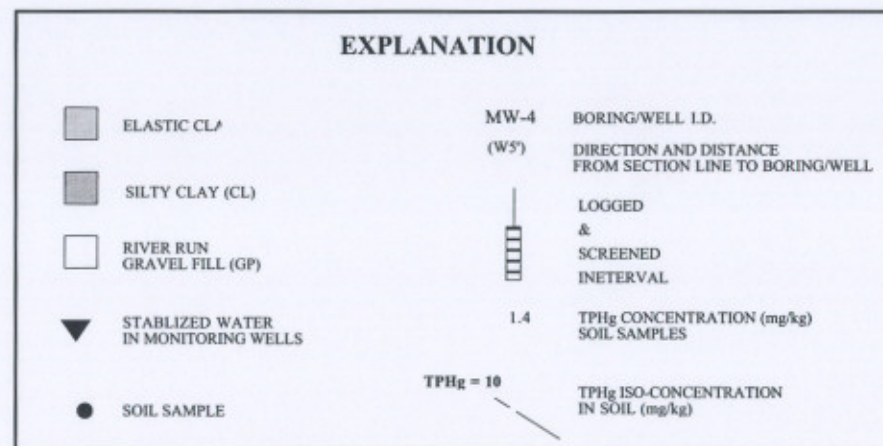
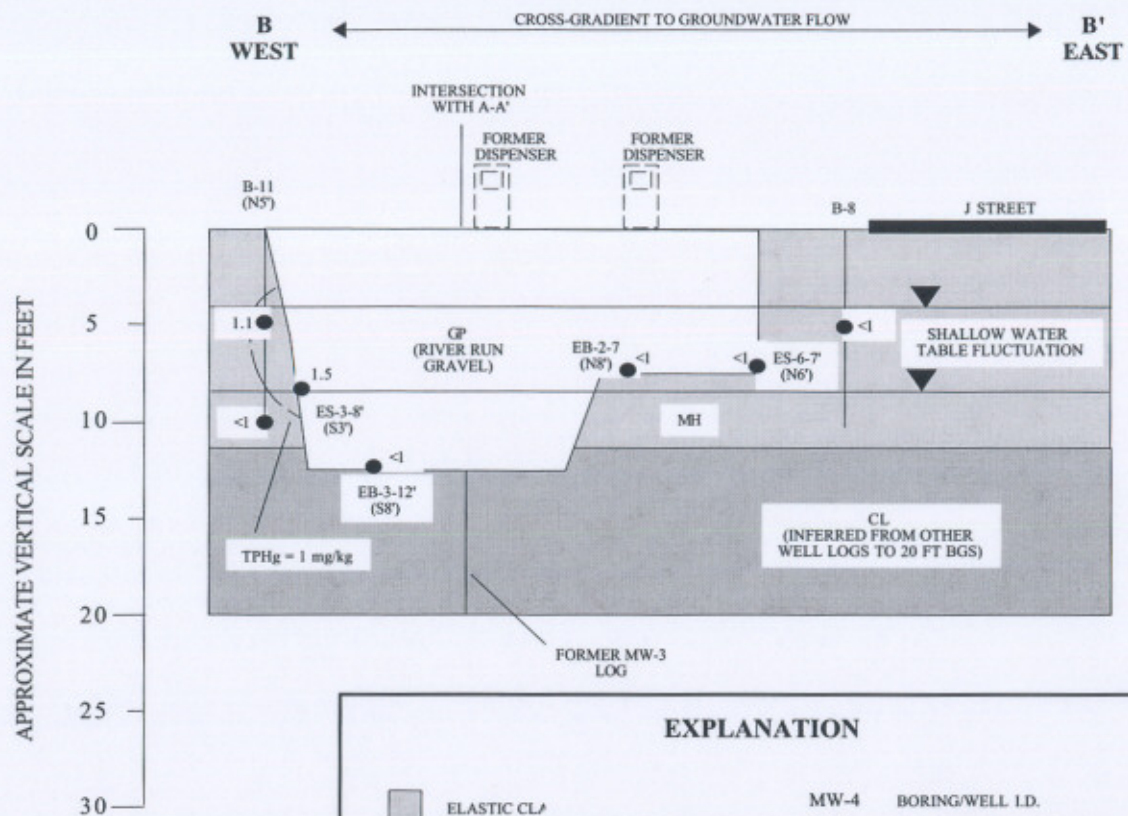
**BLUE ROCK  
ENVIRONMENTAL, INC.**

Project No.  
NC-3

Figure Date  
2/06

Figure  
2a





0' 30'

APPROXIMATE SCALE  
HORIZONTAL SCALE: 1"=30'  
VERTICAL SCALE: 1"=10'

10'

**Cross-Section B-B'**  
Former Cash Oil Arcata  
421 J Street  
Arcata, CA



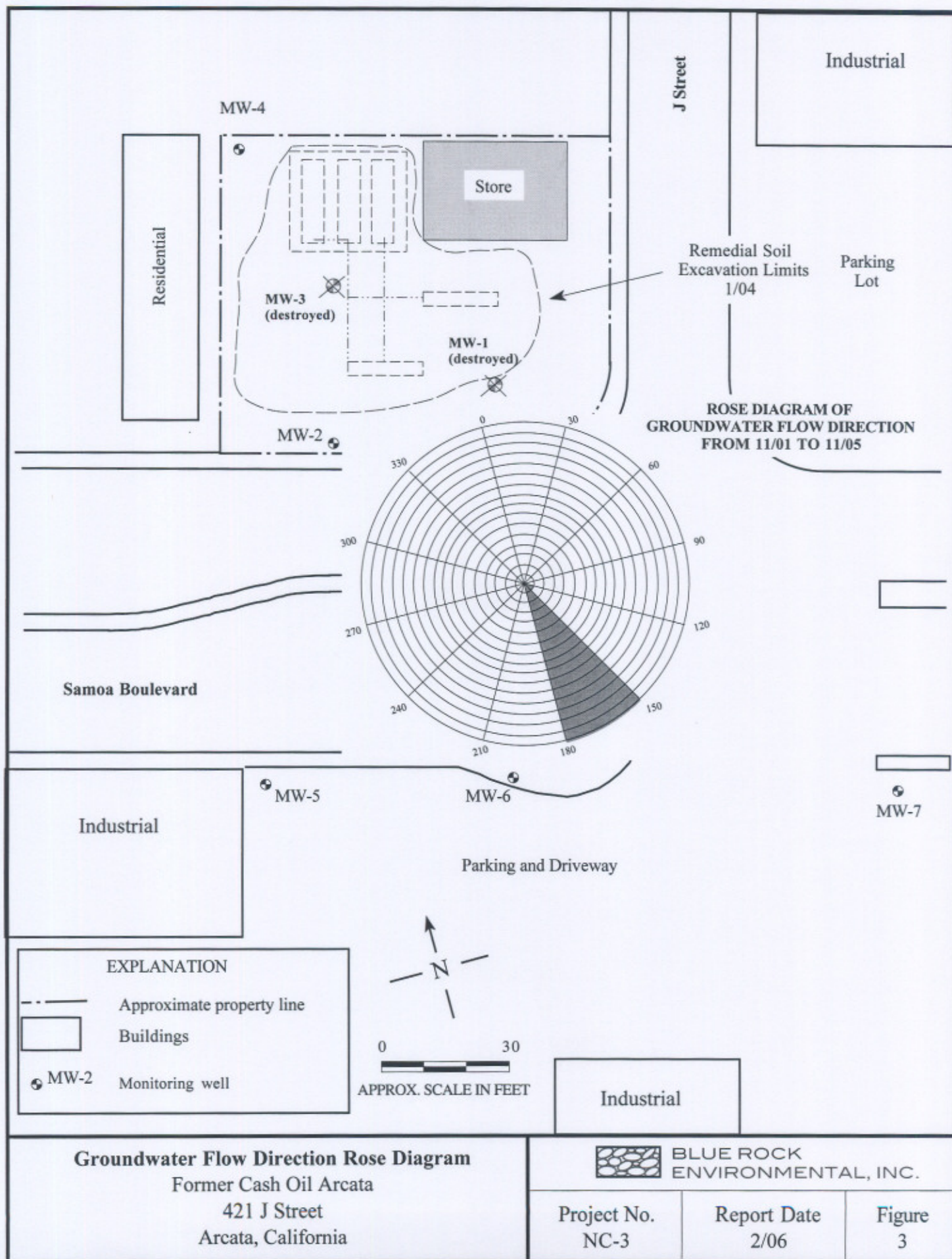
BLUE ROCK  
ENVIRONMENTAL, INC.

Project No.  
NC-3

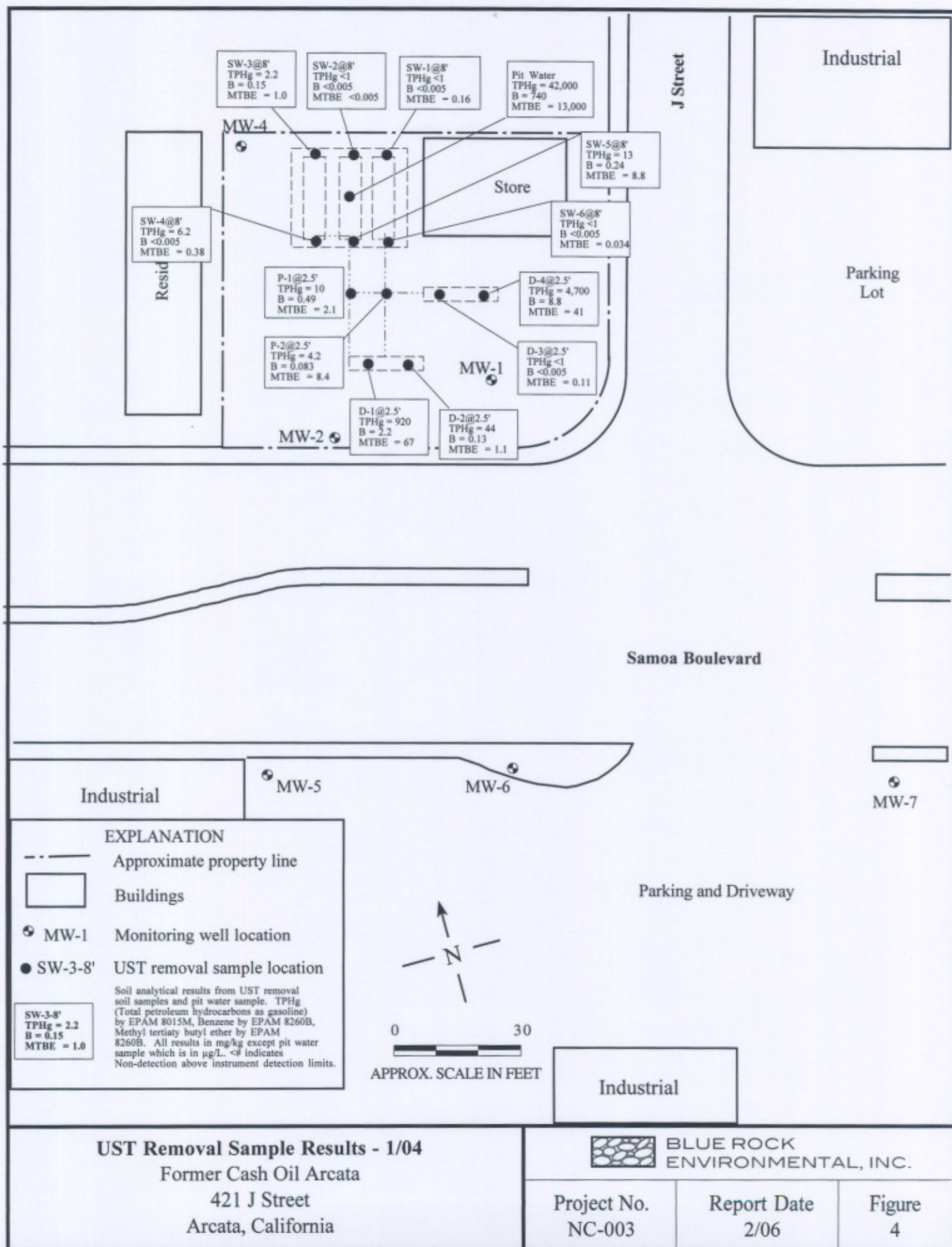
Figure Date  
2/06

Figure  
2b

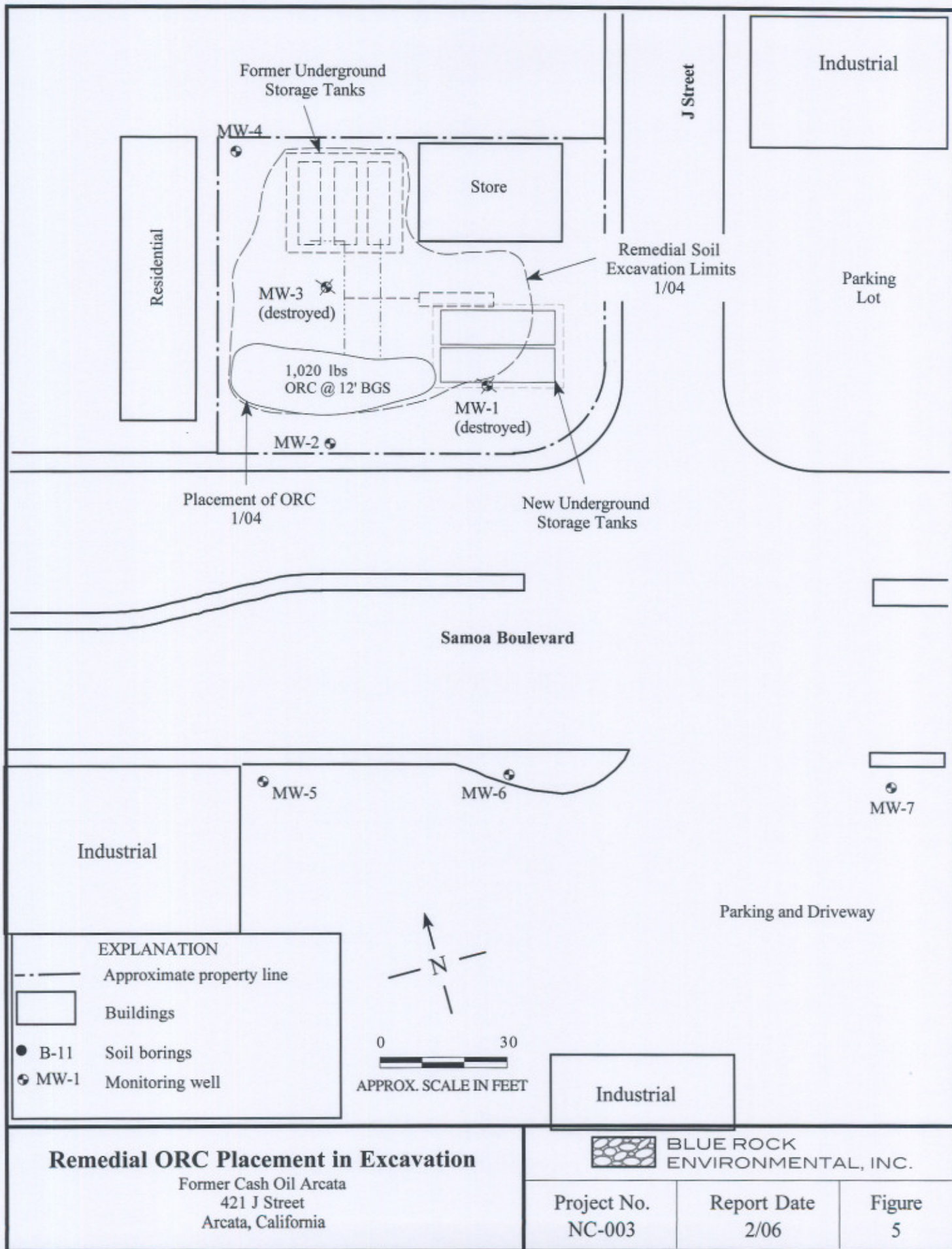




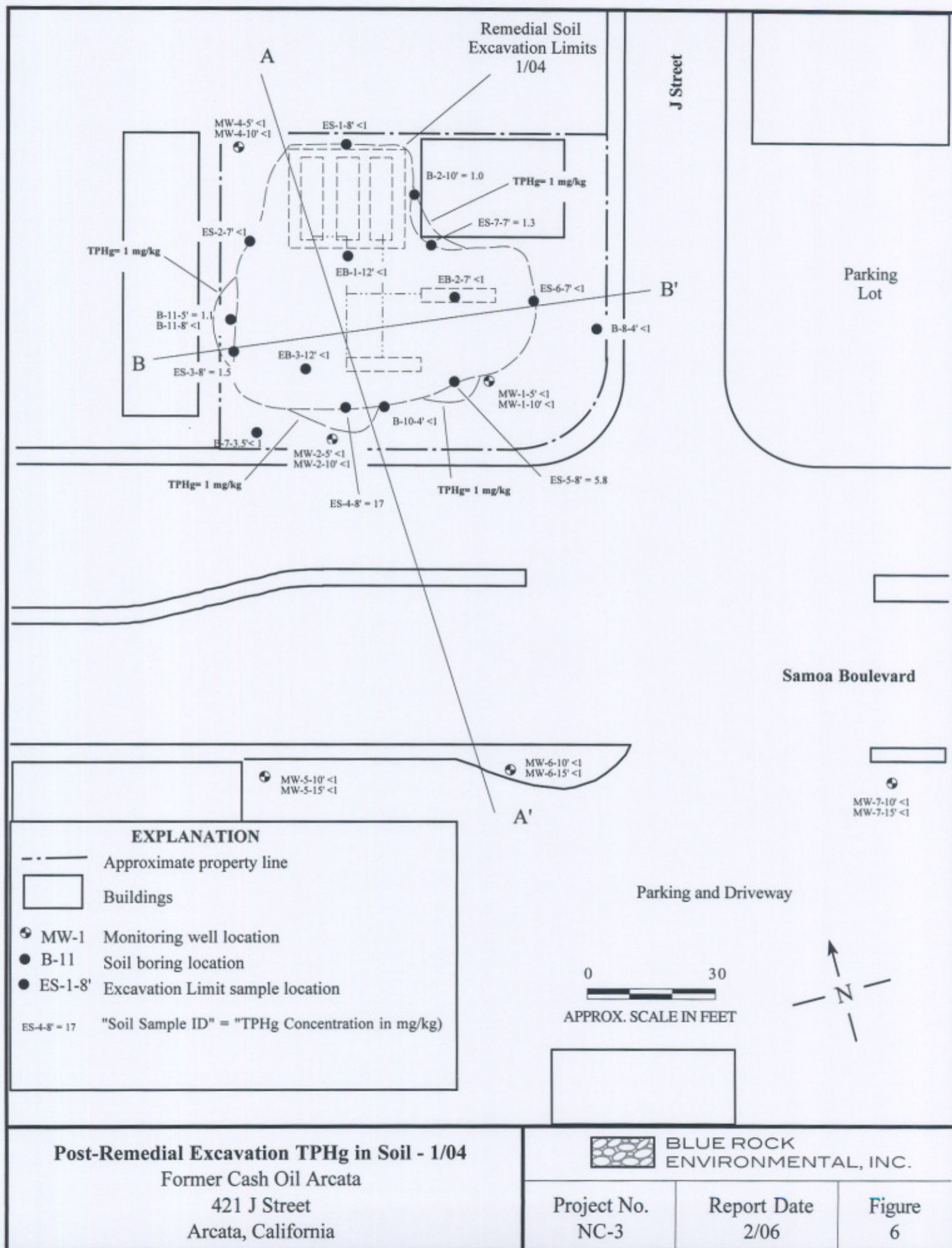




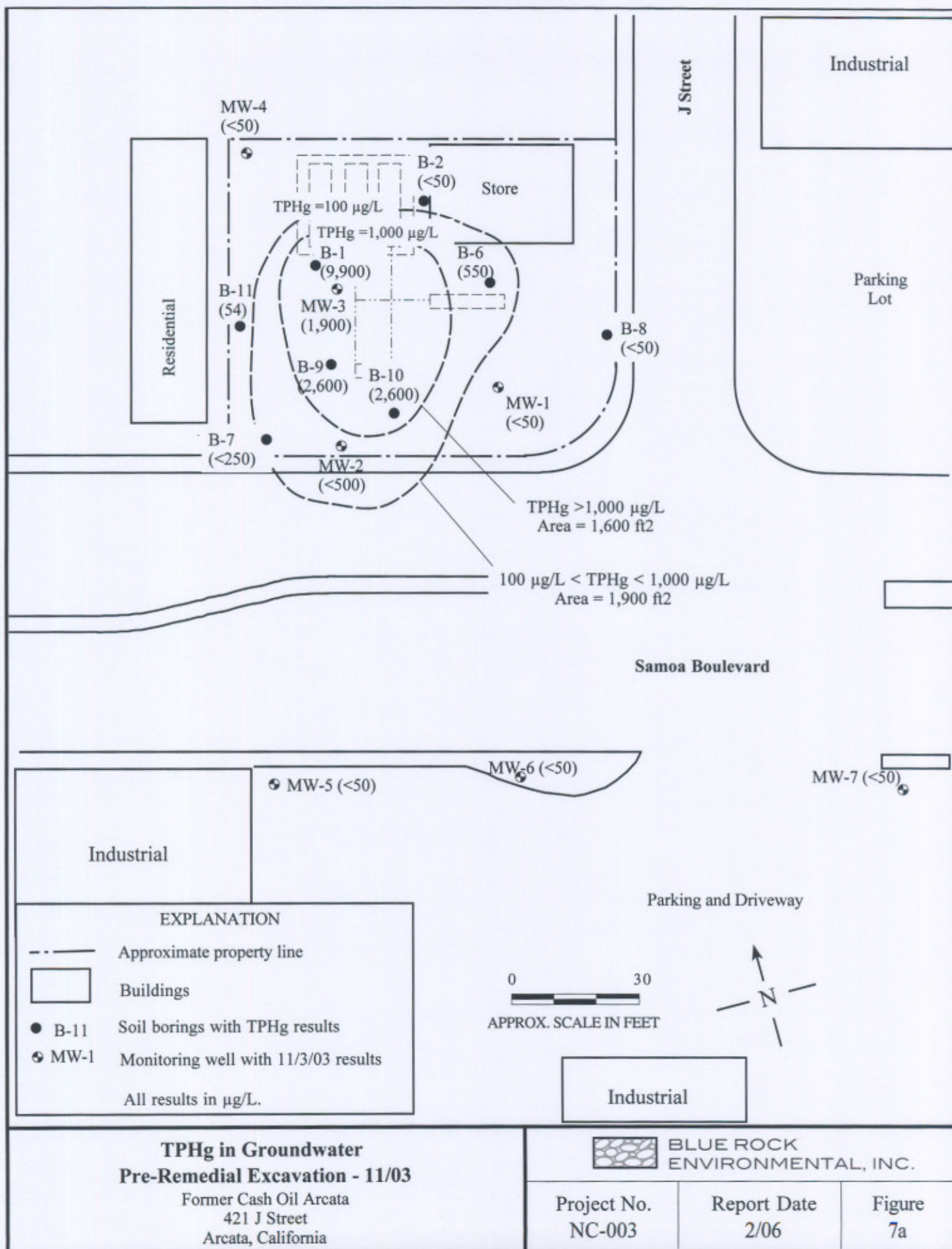




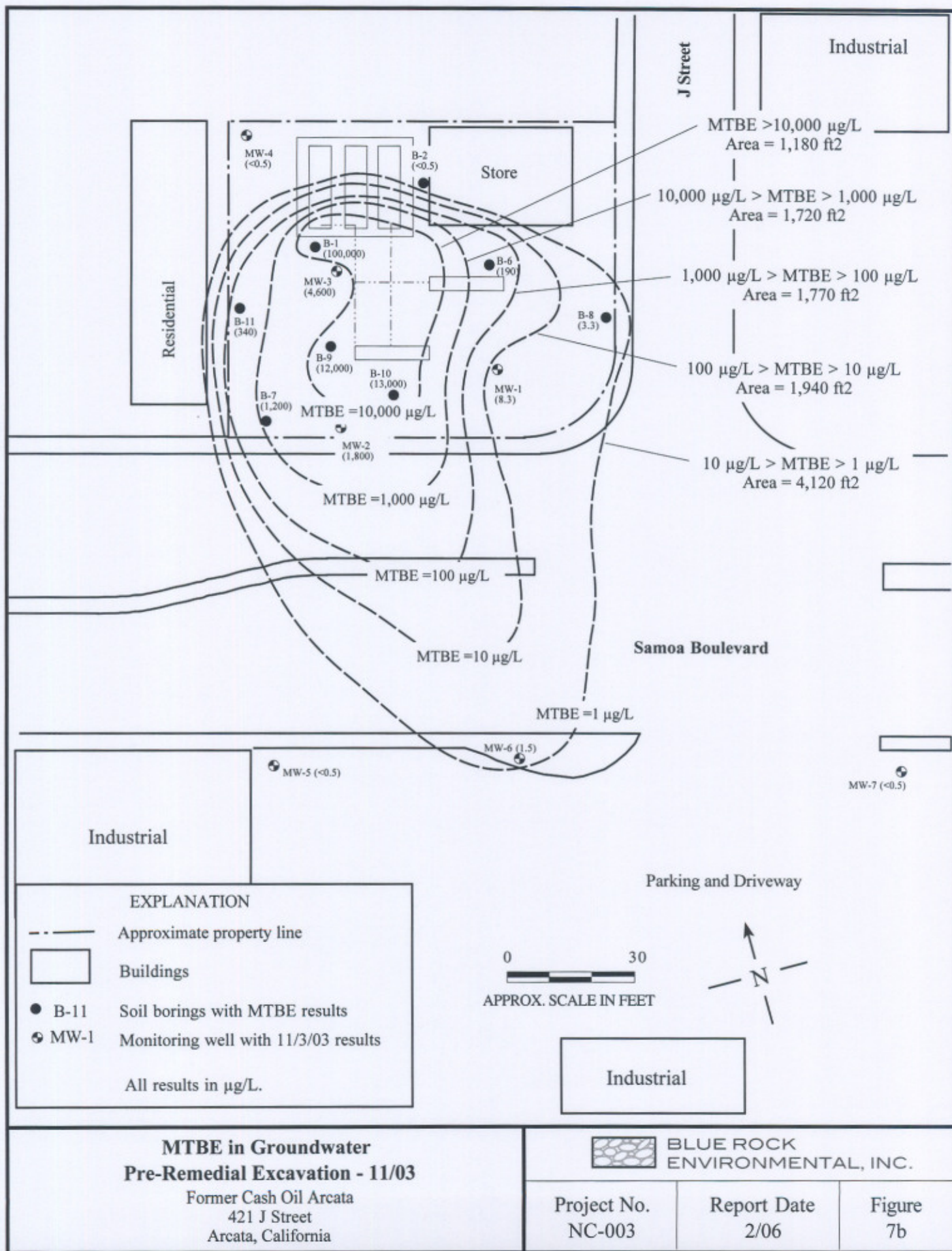




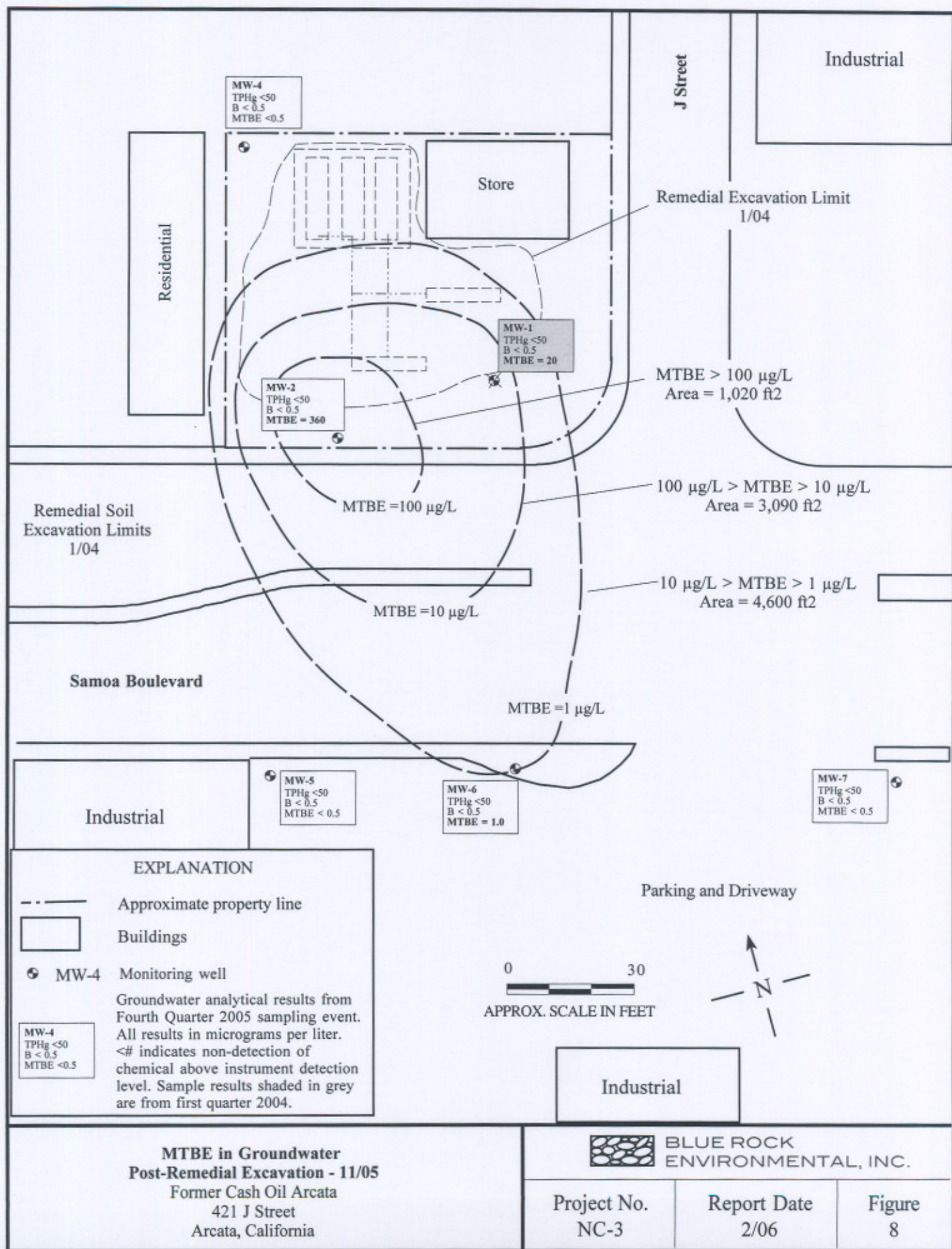






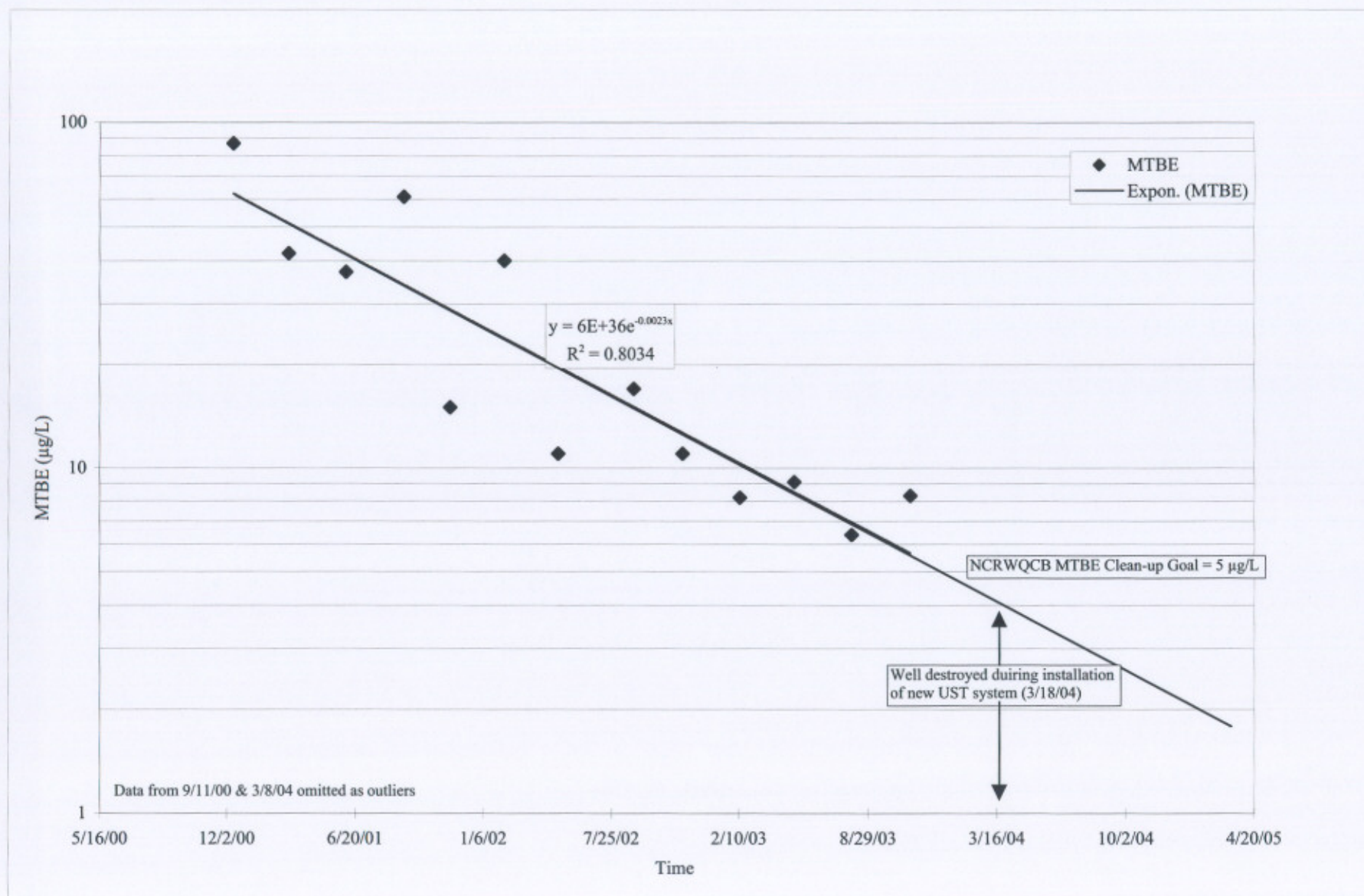






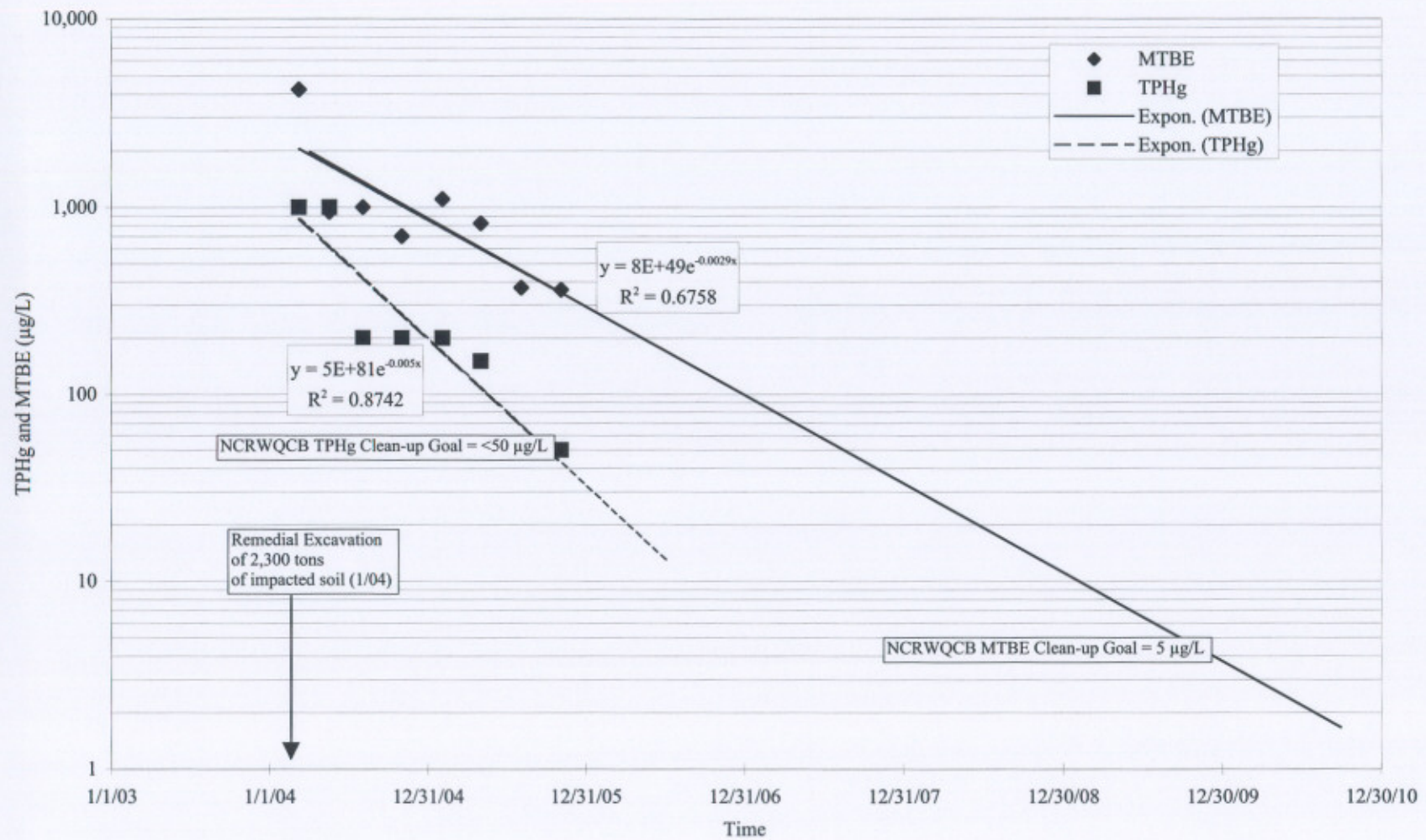


**Chart 1**  
**Dissolved-Phase MTBE Concentrations vs. Time (MW-1)**  
Former Cash Oil Arcata  
421 J Street  
Arcata, California





**Chart 2**  
**Dissolved-Phase TPHg and MTBE Concentrations vs. Time (MW-2)**  
Former Cash Oil Arcata  
421 J Street  
Arcata, California





## CG - FIELD EXPLORATORY SOIL BORING LOG

Project No. ZE145CSheet 1 of 1

FIELD LOCATION OF BORING: B-3 ● UST complex N pump islands				CLIENT/LOCATION: Cash Oil Arcata		PLANNED USE: grab sample		BORING DEPTH: 5'		BORING/WELL NO.: B-3		
				DRILLING CONTRACTOR: Fisch Environmental		DRILL RIG TYPE: Geoprobe		WELL DEPTH: -		BORING DIAMETER: 2.0"		
				DRILL RIG OPERATOR: -		WELL MATERIAL: -		FILTER PACK: -		SCREEN SLOT SIZE: -		
				WELL SEAL: -								
WELL CONSTRUCTION DETAIL	SAMPLING			DEPTH (FEET)	OVM READING (PPM)	ESTIMATED PERCENT			GRAPHIC LOG	SAMPLING METHOD: Direct Push		
	BLOWS/6" INTERVAL	DRIVE	RECOVERY			ANALYTICAL	GRAVEL	SAND		FINES	MONITORING INSTRUMENT: Mini Rae Photoionization Detector	
										FIRST ENCOUNTERED WATER DEPTH: 3.75'		
										STATIC WATER DEPTH - DATE 3' 12/3/99		
										Cement Subgrade Fill (SW) Coarse sand-Brown, well-graded, with little or no fines, no odor		
				1		90	10					
				2			100					
				3								
				4								
				5								
				6								
				7								
				8								
				9								
				0								
				1								
				2								
				3								
				4								
				5								
				6								
				7								
				8								
				9								
				0								
				1								
				2								
				3								
				4								
				5								
				6								
				7								
				8								
				9								
				0								
				1								
				2								
				3								
				4								
				5								
				6								
				7								
				8								
				9								
				0								

FINISH

DRILLING/WELL CONSTRUCTION: START 14:30

LOGGED BY:

APPROVED BY:



## CG - FIELD EXPLORATORY SOIL BORING LOG

Project No. ZE145CSheet 1 of 1

FIELD LOCATION OF BORING: 				CLIENT/LOCATION: <b>Cash Oil Arcata</b>		PLANNED USE: <b>grab sample</b>		BORING DEPTH: <b>5.0'</b>		BORING/WELL NO.: <b>B-6</b>			
DRILLING CONTRACTOR: <b>Fisch Environmental</b>				DRILL RIG TYPE: <b>Geoprobe</b>		WELL DEPTH: <b>-</b>		BORING DIAMETER: <b>2.0"</b>					
DRILL RIG OPERATOR: <b>-</b>				WELL MATERIAL: <b>-</b>		FILTER PACK: <b>-</b>		SCREEN SLOT SIZE: <b>-</b>					
WELL SEAL: <b>-</b>													
WELL CONSTRUCTION DETAIL	SAMPLING				WATER LEVEL	DEPTH (FEET)	OVM READING (PPM)	ESTIMATED PERCENT			GRAPHIC LOG	SAMPLING METHOD: <b>Direct Push</b>	
	BLOWS/6" INTERVAL	DRIVE	RECOVERY	ANALYTICAL				GRAVEL	SAND	FINES		MONITORING INSTRUMENT: <b>Mini Rae Photoionization Detector</b>	
												FIRST ENCOUNTERED WATER DEPTH:	
												STATIC WATER DEPTH - DATE	
(The main data table area contains a grid for recording data. The first 10 feet of depth are marked on the right. The first 5 feet of the graphic log show a pattern of dots, representing the soil profile.)													

FINISH

DRILLING/WELL CONSTRUCTION: START 10:45

LOGGED BY:

APPROVED BY:



# CG - FIELD EXPLORATORY SOIL BORING LOG

Project No. ZE145C

Sheet 1 of 1

FIELD LOCATION OF BORING: 				CLIENT/LOCATION: <u>Cash Oil Arcata</u>		PLANNED USE: <u>grab sample</u>		BORING DEPTH: <u>5'</u>		BORING/WELL NO.: <u>B-7</u>	
DRILLING CONTRACTOR: <u>Fisch Environmental</u>				DRILL RIG TYPE: <u>Geoprobe</u>		WELL DEPTH: <u>-</u>		BORING DIAMETER: <u>2.0"</u>			
DRILL RIG OPERATOR: <u>-</u>				WELL MATERIAL: <u>-</u>		FILTER PACK: <u>-</u>		SCREEN SLOT SIZE: <u>-</u>			
WELL SEAL: <u>-</u>											

WELL CONSTRUCTION DETAIL	SAMPLING				WATER LEVEL	DEPTH (FEET)	OVM READING (PPM)	ESTIMATED PERCENT			GRAPHIC LOG	SAMPLING METHOD: Direct Push
	BLOWS/6" INTERVAL	DRIVE	RECOVERY	ANALYTICAL				GRAVEL	SAND	FINES		
						1						Concrete (MH) Blue clay, silty fines, strong odor, moderate plasticity, moist
						2						
						3						
						4						
						5						
						6						
						7						
						8						
						9						
						0						
						1						
						2						
						3						
						4						
						5						
						6						
						7						
						8						
						9						
						0						
						1						
						2						
						3						
						4						
						5						
						6						
						7						
						8						
						9						
						0						

FINISH

DRILLING/WELL CONSTRUCTION: START 15:00

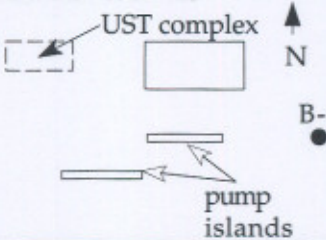
LOGGED BY: \_\_\_\_\_

APPROVED BY: \_\_\_\_\_




## CG - FIELD EXPLORATORY SOIL BORING LOG

Project No. ZE145CSheet 1 of 1

FIELD LOCATION OF BORING: 				CLIENT/LOCATION: <b>Cash Oil Arcata</b>		PLANNED USE: <b>grab sample</b>		BORING DEPTH: <b>5.5'</b>		BORING/WELL NO.: <b>B-8</b>	
DRILLING CONTRACTOR: <b>Fisch Environmental</b>				DRILL RIG TYPE: <b>Geoprobe</b>		WELL DEPTH: <b>-</b>		BORING DIAMETER: <b>2.0"</b>			
DRILL RIG OPERATOR: <b>-</b>				WELL MATERIAL: <b>-</b>		FILTER PACK: <b>-</b>		SCREEN SLOT SIZE: <b>-</b>			
WELL SEAL: <b>-</b>											

WELL CONSTRUCTION DETAIL	SAMPLING			WATER LEVEL	DEPTH (FEET)	OVM READING (PPM)	ESTIMATED PERCENT			GRAPHIC LOG	SAMPLING METHOD: Direct Push
	BLOWS/6' INTERVAL	DRIVE	RECOVERY				ANALYTICAL	GRAVEL	SAND		
											MONITORING INSTRUMENT: Mini Rae Photoionization Detector
											FIRST ENCOUNTERED WATER DEPTH: 5'
											STATIC WATER DEPTH - DATE 4.3' 12/3/99
					1					 <p>Concrete (MH) Blue-green silty clay, moderate plasticity, moist, no odor</p>	
					2						
					3						
					4						
					5						
					6						
					7						
					8						
					9						
					0						
					1						
					2						
					3						
					4						
					5						
					6						
					7						
					8						
					9						
					0						
					1						
					2						
					3						
					4						
					5						
					6						
					7						
					8						
					9						
					0						

FINISH

DRILLING/WELL CONSTRUCTION: START 12:00

LOGGED BY:

APPROVED BY:



# CG - FIELD EXPLORATORY SOIL BORING LOG

Project No. ZE145C

Sheet 1 of 1

FINISH 13:30

DRILLING/WELL CONSTRUCTION: START 13:10

LOGGED BY:

APPROVED BY:

<b>FIELD LOCATION OF BORING:</b> 				<b>CLIENT/LOCATION:</b> Cash Oil Arcata				<b>PLANNED USE:</b> grab sample		<b>BORING DEPTH:</b> 5.5'		<b>BORING/WELL NO.:</b> B-9	
<b>DRILLING CONTRACTOR:</b> Fisch Environmental				<b>DRILL RIG TYPE:</b> Geoprobe				<b>WELL DEPTH:</b> -		<b>BORING DIAMETER:</b> 2.0"			
<b>DRILL RIG OPERATOR:</b> -				<b>WELL MATERIAL:</b> -				<b>FILTER PACK:</b> -		<b>SCREEN SLOT SIZE:</b> -			
<b>WELL SEAL:</b> -													
<b>WELL CONSTRUCTION DETAIL</b>	<b>SAMPLING</b>			<b>WATER LEVEL</b>	<b>DEPTH (FEET)</b>	<b>Q/M READING (PPM)</b>	<b>ESTIMATED PERCENT</b>			<b>GRAPHIC LOG</b>	<b>SAMPLING METHOD:</b> Direct Push		
	<b>BLOWS/6" INTERVAL</b>	<b>DRIVE</b>	<b>RECOVERY</b>				<b>ANALYTICAL</b>	<b>GRAVEL</b>	<b>SAND</b>		<b>FINES</b>	<b>MONITORING INSTRUMENT:</b> Mini Rae Photoionization Detector	
												<b>FIRST ENCOUNTERED WATER DEPTH:</b> 5'	
												<b>STATIC WATER DEPTH - DATE</b> 4.6' 12/3/99	
											Concrete (GC) 1/4" cobbles with brown silt (ML) Brown fines with clay, moderate plasticity, moist, no odor (MH) Brown turning to blue gray with fines/silt with strong odor, moderate plasticity, moist		
					1								
					2								
					3								
					4								
					5								
					6								
					7								
					8								
					9								
					0								
					1								
					2								
					3								
					4								
					5								
					6								
					7								
					8								
					9								
					0								
					1								
					2								
					3								
					4								
					5								
					6								
					7								
					8								
					9								
					0								



Project No. ZE145CSheet 1 of 1

FIELD LOCATION OF BORING:						CLIENT/LOCATION:		PLANNED USE:		BORING DEPTH:	BORING/WELL NO.:	
<p>UST complex B-10 pump islands</p>						Cash Oil Arcata		grab sample		5.0'	B-10	
						DRILLING CONTRACTOR: Fisch Environmental		DRILL RIG TYPE: Geoprobe		WELL DEPTH: -	BORING DIAMETER: 2.0"	
						DRILL RIG OPERATOR: -		WELL MATERIAL: -		FILTER PACK: -	SCREEN SLOT SIZE: -	
						WELL SEAL: -						
WELL CONSTRUCTION DETAIL	SAMPLING				WATER LEVEL	DEPTH (FEET)	OVM READING (PPM)	ESTIMATED PERCENT			GRAPHIC LOG	SAMPLING METHOD: Direct Push
	BLOWS/6" INTERVAL	DRIVE	RECOVERY	ANALYTICAL				GRAVEL	SAND	FINES		MONITORING INSTRUMENT: Mini Rae Photoionization Detector
												FIRST ENCOUNTERED WATER DEPTH: 5'
												STATIC WATER DEPTH - DATE 4' 12/3/99
				X		1					Cement	
						2					(GC) Red 1/4" cobbles with gray silt	
						3					(ML) Blue silty clay, moderate plasticity, moist, no odor	
						4					(MH) Brown silty clay with red pockets, moderate plasticity, moist, no odor	
						5						
						6						
						7						
						8						
						9						
						0						
						1						
						2						
						3						
						4						
						5						
						6						
						7						
						8						
						9						
						0						
						1						
						2						
						3						
						4						
						5						
						6						
						7						
						8						
						9						
						0						



Project No. ZE145CSheet 1 of 1

FIELD LOCATION OF BORING:						CLIENT/LOCATION:			PLANNED USE:		BORING DEPTH:	BORING/WELL NO.:
						Cash Oil Arcata			grab sample		20'	B-11
						DRILLING CONTRACTOR: Mitchell Drilling Env.			DRILL RIG TYPE: Hollow Stem		WELL DEPTH: -	BORING DIAMETER: 8"
						DRILL RIG OPERATOR: Ed Mitchell			WELL MATERIAL: -		FILTER PACK: -	SCREEN SLOT SIZE: -
						WELL SEAL: Bentonite / Portland Cement						
WELL CONSTRUCTION DETAIL	SAMPLING				WATER LEVEL	DEPTH (FEET)	OVM READING (PPM)	ESTIMATED PERCENT			GRAPHIC LOG	SAMPLING METHOD: Split spoon
	BLOWS/6" INTERVAL	DRIVE	RECOVERY	ANALYTICAL				GRAVEL	SAND	FINES		MONITORING INSTRUMENT: Mini Rae Photoionization Detector
												FIRST ENCOUNTERED WATER DEPTH: 10'
												STATIC WATER DEPTH - DATE
						1						Concrete
						2						Subgrade Fill
						3						Concrete
						4						Silty Clay w/ Sand (MH) Brown/ Black, Moderate plasticity, moist, no odor sparse organic matter present
	2	6	6		5	15.3		30	70			
	3	6	6	x	6							
	4	6	6		7							
					8							
					9							
					0	14.1						
	3	6	6		1							
	6	6	6	x	2							
	5	6	6		3							
					4							
					5							
					6							
					7							
					8							
					9							
					0							
					1							
					2							
					3							
					4							
					5							
					6							
					7							
					8							
					9							
					0							



Sheet 1 of 4APPROVED BY:



Project No. ZE145C

Sheet 2 of 4

FIELD LOCATION OF BORING:						CLIENT/LOCATION:		PLANNED USE:		BORING DEPTH:	BORING/WELL NO.:	
 UST      ● MW-2						Cash Oil Arcata		Monitoring Well		20'	MW-2	
						DRILLING CONTRACTOR: Mitchell Drilling Env.		DRILL RIG TYPE: Geoprobe		WELL DEPTH: 20'	BORING DIAMETER: 8"	
						DRILL RIG OPERATOR: Ed Mitchell		WELL MATERIAL: PVC		FILTER PACK: 2/12	SCREEN SLOT SIZE: 0.020"	
						WELL SEAL: Bentonite / Portland Cement						
WELL CONSTRUCTION DETAIL	SAMPLING				WATER LEVEL	DEPTH (FEET)	OVM READING (PTM)	ESTIMATED PERCENT			GRAPHIC LOG	SAMPLING METHOD: Continuous core
	BLOWS/6" INTERVAL	DRIVE	RECOVERY	ANALYTICAL				GRAVEL	SAND	FINES		
						1						Concrete
						2						Subgrade Fill
						3			20	80		Silty Clay (MH) Gray/ Black, Moderate plasticity, moist, no odor
	2	6	6			4						
	4	6	6	x		5	13.1		30	70		
	4	6	6			6						
						7						
						8						Silty Clay w/ Sand (MH)Black, Moderate plasticity, moist, no odor
						9						
						0	12.5					
	2	6	6			1						
	3	6	6	x		2			30	70		Silty Clay w/ Sand (MH) Gray, moderate plasticity, wet, slight organic odor
	4	6	6			3						
						4						
						5						
						6						
						7						
						8						
						9						
						0						
						1						
						2						
						3						
						4						
						5						
						6						
						7						
						8						
						9						
						0						



# CGI - FIELD EXPLORATORY SOIL BORING LOG

Project No. ZE145C

Sheet 3 of 4

FIELD LOCATION OF BORING: 		CLIENT/LOCATION: <b>Cash Oil Arcata</b>		PLANNED USE: <b>Monitoring Well</b>		BORING DEPTH: <b>20'</b>		BORING/WELL NO.: <b>MW-3</b>	
		DRILLING CONTRACTOR: <b>Mitchell Drilling Env.</b>		DRILL RIG TYPE: <b>Hollow Stem</b>		WELL DEPTH: <b>20'</b>		BORING DIAMETER: <b>8"</b>	
		DRILL RIG OPERATOR: <b>Ed Mitchell</b>		WELL MATERIAL: <b>PVC</b>		FILTER PACK: <b>2/12</b>		SCREEN SLOT SIZE: <b>0.020"</b>	
WELL SEAL: <b>Bentonite / Portland Cement</b>									

WELL CONSTRUCTION DETAIL	SAMPLING				WATER LEVEL	DEPTH (FEET)	OVM READING (PPM)	ESTIMATED PERCENT			GRAPHIC LOG	DESCRIPTION
	BLOWS/6" INTERVAL	DRIVE	RECOVERY	ANALYTICAL				GRAVEL	SAND	FINES		
						1						Concrete
						2						Subgrade Fill
						3						Concrete
						4						Silty Clay (MH) Gray/ Black, Moderate plasticity, moist, slight HC odor
	2	6	6			5	94.5	30	70			
	4	6	6	X		6						
	4	6	6			7						
	2	6	6			8	56.0					Silty Clay (MH) Black, organic matter present, Moderate plasticity, moist, no odor
	3	6	6	X		9						
	5	6	6			0	14.8					
	2	6	6			1						Silty Clay (MH) Gray, moderate plasticity, wet, slight organic odor
	3	6	6	X		2						
	4	6	6			3						
						4						
						5						
						6						
						7						
						8						
						9						
						0						
						1						
						2						
						3						
						4						
						5						
						6						
						7						
						8						
						9						
						0						

APPROVED BY: \_\_\_\_\_ LOGGED BY: Andrew Locicero DRILLING/WELL CONSTRUCTION: START 9:00 FINISH 9:45



# CGI - FIELD EXPLORATORY SOIL BORING LOG

Project No. ZE145C

Sheet 4 of 4

FIELD LOCATION OF BORING: MW-4 UST complex			CLIENT/LOCATION: <u>Cash Oil Arcata</u>		PLANNED USE: <u>Monitoring Well</u>		BORING DEPTH: <u>20'</u>		BORING/WELL NO.: <u>MW-4</u>																																	
			DRILLING CONTRACTOR: <u>Mitchell Drilling Env.</u>		DRILL RIG TYPE: <u>Hollow Stem</u>		WELL DEPTH: <u>20'</u>		BORING DIAMETER: <u>8"</u>																																	
			DRILL RIG OPERATOR: <u>Ed Mitchell</u>		WELL MATERIAL: <u>PVC</u>		FILTER PACK: <u>2/12</u>		SCREEN SLOT SIZE: <u>0.020"</u>																																	
			WELL SEAL: <u>Bentonite / Portland Cement</u>																																							
WELL CONSTRUCTION DETAIL	SAMPLING				DEPTH (FEET)	OVM READING (PPM)	ESTIMATED PERCENT			GRAPHIC LOG	SAMPLING METHOD: <u>Split spoon</u>																															
	BLOWS/6" INTERVAL	DRIVE	RECOVERY	ANALYTICAL			WATER LEVEL	GRAVEL	SAND		FINES	MONITORING INSTRUMENT: <u>Mini Rae Photoionization Detector</u>																														
											FIRST ENCOUNTERED WATER DEPTH:																															
											STATIC WATER DEPTH - DATE																															
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr><td>9</td><td>6</td><td>6</td><td></td></tr> <tr><td>8</td><td>6</td><td>6</td><td>x</td></tr> <tr><td>8</td><td>6</td><td>6</td><td></td></tr> <tr><td>5</td><td>6</td><td>6</td><td></td></tr> <tr><td>8</td><td>6</td><td>6</td><td>x</td></tr> <tr><td>13</td><td>6</td><td>0</td><td></td></tr> </table> </div> <div style="width: 45%;"> <table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr><td>11.0</td><td>30</td><td>70</td></tr> <tr><td>11.4</td><td></td><td></td></tr> </table> </div> </div>											9	6	6		8	6	6	x	8	6	6		5	6	6		8	6	6	x	13	6	0		11.0	30	70	11.4			Concrete	
											9	6	6																													
											8	6	6	x																												
											8	6	6																													
											5	6	6																													
											8	6	6	x																												
											13	6	0																													
											11.0	30	70																													
											11.4																															
											Subgrade Fill																															
											Concrete																															
											Silty Clay (MH) Brown/ Black, Moderate plasticity, moist, no odor																															
											Silty Clay (MH) Black / Gray, organic matter present, Moderate plasticity, moist, no odor																															

APPROVED BY: \_\_\_\_\_ LOGGED BY: Andrew Locicero DRILLING/WELL CONSTRUCTION: START 9:00 FINISH 9:45



## Sheet 1 of 3

APPROVED BY: \_\_\_\_\_

LOGGED BY: Melissa Richard

DRILLING/WELL CONSTRUCTION: START \_\_\_\_\_ 9:50

FINISH \_\_\_\_\_



# CG - FIELD EXPLORATORY SOIL BORING LOG

Project No. ZE145C

Sheet 2 of 3

FIELD LOCATION OF BORING: <div style="border: 1px solid black; padding: 5px; margin: 5px 0;">           Site         </div> <div style="display: flex; align-items: center;"> <div>             Samoa Blvd.  <div style="display: flex; justify-content: space-around; width: 100px;"> <div style="text-align: center;">●</div> <div style="text-align: center;">●</div> <div style="text-align: center;">●</div> </div> <div style="display: flex; justify-content: space-around; width: 100px;"> <span>MW-5</span> <span>MW-6</span> <span>MW-7</span> </div> </div> </div>			CLIENT/LOCATION: <b>Former Cash Arcata</b>		PLANNED USE: <b>Monitoring</b>	BORING DEPTH: <b>20'</b>	BORING/WELL NO.: <b>MW-6</b>
DRILLING CONTRACTOR: <b>MDE</b>			DRILL RIG TYPE: <b>CME-60</b>	WELL DEPTH: <b>20'</b>	BORING DIAMETER: <b>8"</b>		
DRILL RIG OPERATOR: <b>Ed Mitchell</b>			WELL MATERIAL: <b>PVC</b>	FILTER PACK: <b>2/12</b>	SCREEN SLOT SIZE: <b>0.02</b>		
WELL SEAL: <b>Neat cement over hydrated bentonite</b>							

WELL CONSTRUCTION DETAIL 	SAMPLING			WATER LEVEL <div style="text-align: center;">               4.51'         </div>	DEPTH (FEET)	OVM READING (PTM)	ESTIMATED PERCENT			GRAPHIC LOG	SAMPLING METHOD: <b>California Modified Split Spoon</b>		
	BLOWS/6" INTERVAL	DRIVE	RECOVERY				ANALYTICAL	GRAVEL	SAND		FINES	MONITORING INSTRUMENT: <b>OVM</b>	
												FIRST ENCOUNTERED WATER DEPTH: <b>10'</b>	
												STATIC WATER DEPTH - DATE: <b>4.51' on 11/16/01</b>	

1					<div style="background: repeating-linear-gradient(45deg, transparent, transparent 2px, black 2px, black 4px); width: 100%; height: 100%;"></div>	<p>(CL) Silty Clay, dark brown, low plasticity, low moisture</p> <p>(CL) Silty Clay, dark brown, moderate to high plasticity, moist</p> <p>(CL) Sandy Clay, dark gray, moderate plasticity, moist</p>
2						
3						
4	2.7					
5						
6						
7						
8						
9	2.2					
10						
11						
12						
13						
14	2.4					
15						
16						
17						
18						
19	2.4					
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						


LOGGED BY: Melissa Richard 11:20 FINISH DRILLING/WELL CONSTRUCTION: START APPROVED BY:



# CG - FIELD EXPLORATORY SOIL BORING LOG

Project No. ZE145C

Sheet 3 of 3

FIELD LOCATION OF BORING:				CLIENT/LOCATION:		PLANNED USE:		BORING DEPTH:		BORING/WELL NO.:	
Site				Former Cash Arcata		Monitoring		20'		MW-7	
 Samoa Blvd. MW-5      MW-6      MW-7				DRILLING CONTRACTOR:		DRILL RIG TYPE:		WELL DEPTH:		BORING DIAMETER:	
				MDE		CME-60		20'		8"	
				DRILL RIG OPERATOR:		WELL MATERIAL:		FILTER PACK:		SCREEN SLOT SIZE:	
Ed Mitchell		PVC		2/12		0.02					
WELL SEAL:											
Neat cement over hydrated bentonite											
SAMPLING METHOD: California Modified Split Spoon											
MONITORING INSTRUMENT: OVM											
FIRST ENCOUNTERED WATER DEPTH: 10'											
STATIC WATER DEPTH - DATE: 5.19' on 11/16/01											
WELL CONSTRUCTION DETAIL	SAMPLING			DEPTH (FEET)	OVM READING (PPM)	ESTIMATED PERCENT			GRAPHIC LOG		
	BLOWS/6' INTERVAL	DRIVE RECOVERY	ANALYTICAL			GRAVEL	SAND	FINES			
				1							
				2							
				3							
				4	2.0						
				5						(CL) Silty Clay, dark gray, moderate plasticity, moist	
				6							
				7						(CL) Sandy Clay, dark gray, moderate plasticity, moist	
				8							
				9	1.4						
				10							
				11							
				12							
				13							
				14	9.5						
				15							
				16							
				17							
				18							
				19	4.7					(SP) Sand, dark gray, well sorted, coarse grained, moist	
				20							
				21							
				22							
				23							
				24							
				25							
				26							
				27							
				28							
				29							
				30							

12:30

DRILLING/WELL CONSTRUCTION: START

LOGGED BY: Melissa Richard

APPROVED BY:



### Calculation of TPHg Mass Removed by Excavation

Former Cash Oil Arcata, 421 J Street, Arcata, CA

Blue Rock Project # NC-3

### TPHg Mass in Soil Removed by Remedial Excavation

Mass (soil) (lbs)	Avg TPHg Conc. (unitless)	Mass (TPHg) (lbs)
4,664,000	0.000332	1,548

Where,

Mass (TPHg) = Mass of TPHg removed by remedial excavation (lbs)

Mass (soil) = 2,332 tons = 466,400 lbs (where 2,000lbs/ton)

Avg TPHg conc. (excavated soil) = 332 mg/kg = 0.000332 unitless (where 1 kg / 1,000,000 mg)

Calculation of Avg TPHg concentration based on average of all sample points

either excavated or samples from excavated soil stockpile.

(If sample was non-detect, then the detection limit was used as the TPHg concen.)

<u>Sample</u>	<u>TPHg (mg/kg)</u>
B-1-10'	27
B-6-4'	3.6
B-9-4'	3.5
MW-3-5'	13
MW-3-10'	1
SW-1-8'	1
SW-2-8'	1
SW-3-8'	2.2
SW-4-8'	6.2
SW-5-8'	13
SW-6-8'	1
D-1-2.5'	920
D-2-2.5'	44
D-3-2.5'	1
D-4-2.5'	4,700
EX-1	53
EX-2	36
EX-3	410
EX-4	110
EX-5	620
EX-6	1
<b>Avg TPHg conc.</b>	<b>332</b>



### Calculation of Post-Remedial TPHg Mass in Soil

Former Cash Oil Arcata, 421 J Street, Arcata, CA

Blue Rock Project # NC-3

#### Area 1 (B-11 & ES-3)

A (ft <sup>2</sup> )	h (ft)	p (lbs/ft <sup>3</sup> )	Max. TPHg in Area (mg/kg)	Conversion (1 kg / 1,000,000 mg)	TPHg mass (lb)
69	7	100	1.5	0.000001	0.07

#### Area 2 (ES-4)

A (ft <sup>2</sup> )	h (ft)	p (lbs/ft <sup>3</sup> )	Max. TPHg in Area (mg/kg)	Conversion (1 kg / 1,000,000 mg)	TPHg mass (lb)
85	7	100	17	0.000001	1.0

#### Area 3 (ES-5)

A (ft <sup>2</sup> )	h (ft)	p (lbs/ft <sup>3</sup> )	Max. TPHg in Area (mg/kg)	Conversion (1 kg / 1,000,000 mg)	TPHg mass (lb)
34	7	100	5.8	0.000001	0.14

#### Area 4 (ES-7)

A (ft <sup>2</sup> )	h (ft)	p (lbs/ft <sup>3</sup> )	Max. TPHg in Area (mg/kg)	Conversion (1 kg / 1,000,000 mg)	TPHg mass (lb)
35	7	100	1.3	0.000001	0.03

Total TPHg Mass Remaining in Soil (lbs)	1.25
---	------

$$\text{TPHg mass (lbs)} = V \text{ (ft}^3\text{)} * p \text{ (lbs/ft}^3\text{)} * \text{TPHg conc. (mg/kg)} * (1\text{kg}/1,000,000 \text{ mg})$$

A = Area (ft<sup>2</sup>)

h = thickness (ft)

V = volume (ft<sup>3</sup>) = A \* h

p = soil density (assume 100 lbs/ft<sup>3</sup>)



### Calculation of Pre-Remedial TPHg Mass in Groundwater

Former Cash Oil Arcata, 421 J St., Arcata, CA

Blue Rock Project #NC-3

TPHg > 1,000 µg/L						
TPHg max. for zone (µg/L)	A (ft <sup>2</sup> )	h (ft)	n (unitless)	V (ft <sup>3</sup> )	TPHg mass (ft <sup>3</sup> -µg/L)	TPHg mass (lb)
2,600	1,600	15	0.35	8,400	21,840,000	1.4

1,000 > TPHg > 100 µg/L						
TPHg log mean for zone (µg/L)	A (ft <sup>2</sup> )	h (ft)	n (unitless)	V (ft <sup>3</sup> )	TPHg mass (ft <sup>3</sup> -mg/L)	TPHg mass (lb)
320	1,900	15	0.35	9,975	3,192,000	0.2

<b>Total Pre-Remedial TPHg Mass in GW (lbs)</b>	<b>1.6</b>
---	------------

$$\text{TPHg mass} = V \text{ (ft}^3\text{)} * n * \text{TPH conc. (mg/L)} * (0.0000000022 \text{ lbs/mg}) * (28.31 \text{ L/ft}^3\text{)}$$

Where,

A = Area (ft<sup>2</sup>) = specific area of concentration range indicated

h = thickness (ft) = assume plume thickness of 15 ft.

V = volume (ft<sup>3</sup>) = A \* h

n = soil porosity (assume 35%)

TPHg = Total petroleum hydrocarbons as gasoline

lb = pound

µg/L = micrograms per liter

gal. = gallons

ft. = foot



### Calculation of Pre-Remedial MTBE Mass in Groundwater

Former Cash Oil Arcata, 421 J St., Arcata, CA

Blue Rock Project #NC-3

<b>MTBE &gt; 10,000 µg/L</b>						
MTBE avg .max. for zone (µg/L)	A (ft <sup>2</sup> )	h (ft)	n (unitless)	V (ft <sup>3</sup> )	MTBE mass (ft <sup>3</sup> -µg/L)	MTBE mass (lb)
42,000	1,180	15	0.35	6,195	260,190,000	16

<b>10,000 &gt; MTBE &gt; 1,000 µg/L</b>						
MTBE log mean for zone (µg/L)	A (ft <sup>2</sup> )	h (ft)	n (unitless)	V (ft <sup>3</sup> )	MTBE mass (ft <sup>3</sup> -mg/L)	MTBE mass (lb)
3,200	1,720	15	0.35	9,030	28,896,000	1.8

<b>1,000 &gt; MTBE &gt; 100 µg/L</b>						
MTBE log mean for zone (µg/L)	A (ft <sup>2</sup> )	h (ft)	n (unitless)	V (ft <sup>3</sup> )	MTBE mass (ft <sup>3</sup> -mg/L)	MTBE mass (lb)
320	1,770	15	0.35	9,293	2,973,600	0.2

<b>100 &gt; MTBE &gt; 10 µg/L</b>						
MTBE log mean for zone (µg/L)	A (ft <sup>2</sup> )	h (ft)	n (unitless)	V (ft <sup>3</sup> )	MTBE mass (ft <sup>3</sup> -mg/L)	MTBE mass (lb)
32	1,940	15	0.35	10,185	325,920	0.02

<b>10 &gt; MTBE &gt; 1 µg/L</b>						
MTBE log mean for zone (µg/L)	A (ft <sup>2</sup> )	h (ft)	n (unitless)	V (ft <sup>3</sup> )	MTBE mass (ft <sup>3</sup> -mg/L)	MTBE mass (lb)
3.2	4,120	15	0.35	21,630	69,216	0.004

<b>Total Pre-Remedial MTBE Mass in GW (lbs)</b>	<b>18.2</b>
---	-------------

TPHg mass = V (ft<sup>3</sup>) \* n \* TPH conc. (mg/L) \* (0.0000000022 lbs/mg) \* (28.31 L/ft<sup>3</sup>)

Where,

A = Area (ft<sup>2</sup>) = specific area of concentration range indicated

h = thickness (ft) = assume plume thickness of 15 ft.

V = volume (ft<sup>3</sup>) = A \* h

n = soil porosity (assume 35%)

TPHg = Total petroleum hydrocarbons as gasoline

lb = pound

µg/L = micrograms per liter

gal. = gallons

ft. = foot



### Calculation of Post-Remedial MTBE Mass in Groundwater

Former Cash Oil Arcata, 421 J St., Arcata, CA

Blue Rock Project #NC-3

<b>MTBE &gt; 100 µg/L</b>						
MTBE max. for zone (µg/L)	A (ft <sup>2</sup> )	h (ft)	n (unitless)	V (ft <sup>3</sup> )	MTBE mass (ft <sup>3</sup> -mg/L)	MTBE mass (lb)
360	1,020	15	0.35	5,355	1,927,800	0.12

<b>100 &gt; MTBE &gt; 10 µg/L</b>						
MTBE log mean for zone (µg/L)	A (ft <sup>2</sup> )	h (ft)	n (unitless)	V (ft <sup>3</sup> )	MTBE mass (ft <sup>3</sup> -mg/L)	MTBE mass (lb)
32	3,090	15	0.35	16,223	519,120	0.03

<b>10 &gt; MTBE &gt; 1 µg/L</b>						
MTBE log mean for zone (µg/L)	A (ft <sup>2</sup> )	h (ft)	n (unitless)	V (ft <sup>3</sup> )	MTBE mass (ft <sup>3</sup> -mg/L)	MTBE mass (lb)
3.2	4,600	15	0.35	24,150	77,280	0.005

<b>Total Post-Remedial MTBE Mass in GW (lbs)</b>	<b>0.16</b>
--	-------------

$$\text{TPHg mass} = V \text{ (ft}^3\text{)} * n * \text{TPH conc. (mg/L)} * (0.0000000022 \text{ lbs/mg}) * (28.31 \text{ L/ft}^3\text{)}$$

Where,

A = Area (ft<sup>2</sup>) = specific area of concentration range indicated

h = thickness (ft) = assume plume thickness of 15 ft.

V = volume (ft<sup>3</sup>) = A \* h

n = soil porosity (assume 35%)

TPHg = Total petroleum hydrocarbons as gasoline

lb = pound

µg/L = micrograms per liter

gal. = gallons

ft. = foot



Ben's Truck & Equipment, Inc.

# BIO INDUSTRIES, INC.

19760 Callahan Road Red Bluff, CA

P.O. Box 732, Red Bluff, CA 96080 - 530/527-5040 - Fax 530/527-9170

## WEIGHMASTER CERTIFICATE:

THIS IS TO CERTIFY that the following described commodity was weighted, measured or counted by a weighmaster, whose signature is on the certificate, who is a recognized authority of accuracy, as prescribed by Chapter 7 (commencing with Section 12700) of Division 5 of the California Business and Professions Code, administered by the Division of Measurement Standards of the California Department of Food and Agriculture.

GENERATOR: Cash Oil  
421 J Street Arcata, CA

DATE: 01/19/2004

JOB: T-979-04

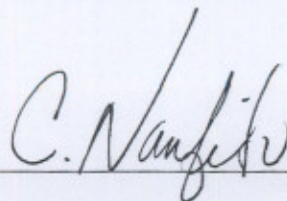
COMMODITY: Contaminated Soil

	CARRIER NAME	TRUCK NO	TRAILER NO	GROSS LBS	TARE LBS	NET LBS	NET TONS
1	Ben's	22	21E	85040	33700	51340	25.67
2	Ben's	33	26E	79840	33560	46280	23.14
3	Ben's	43	22E	82080	32400	49680	24.84
4	Ben's	38	23E	86300	33080	53220	26.61
5	Ben's	21	21P	83580	29220	54360	27.18
6	Ben's	34	34P	79900	30180	49720	24.86
7	Ben's	39	25E	81380	32940	48440	24.22
8	Ben's	41	24E	79820	32240	47580	23.79
9	Ben's	23	23P	78880	28600	50280	25.14
10	Toller	T2	T2A	84940	30620	54320	27.16
11	J & R	531	531A	85720	26140	59580	29.79
12	Meyers	M7	M7T	73240	31380	41860	20.93
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							

Tonnage Total

303.33

WEIGHMASTER:





Ben's Truck & Equipment, Inc.  
**BIO INDUSTRIES, INC.**

19760 Callahan Road Red Bluff, CA

P.O. Box 732, Red Bluff, CA 96080 - 530/527-5040 - Fax 530/527-9170

**WEIGHMASTER CERTIFICATE:**

THIS IS TO CERTIFY that the following described commodity was weighted, measured or counted by a weighmaster, whose signature is on the certificate, who is a recognized authority of accuracy, as prescribed by Chapter 7 (commencing with Section 12700) of Division 5 of the California Business and Professions Code, administered by the Division of Measurement Standards of the California Department of Food and Agriculture.

GENERATOR: Cash Oil  
421 J Street Arcata, CA  
COMMODITY: Contaminated Soil

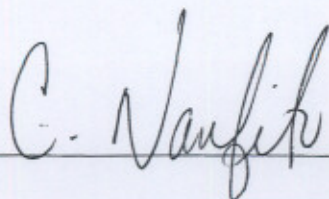
DATE: 01/20/2004  
JOB: T-979-04

	CARRIER NAME	TRUCK NO	TRAILER NO	GROSS LBS	TARE LBS	NET LBS	NET TONS
1	Ben's	33	26E	80580	33540	47040	23.52
2	Ben's	43	22E	79560	32680	46880	23.44
3	Ben's	41	24E	79680	32600	47080	23.54
4	Ben's	39	23E	79660	32480	47180	23.59
5	Ben's	38	23E	79940	33160	46780	23.39
6	Ben's	21	21P	79660	29100	50560	25.28
7	Ben's	34	44T	79920	30340	49580	24.79
8	Ben's	48	48P	78620	31600	47020	23.51
9	Ben's	23	23P	78000	28660	49340	24.67
10	J & R	531	531A	83820	26140	57680	28.84
11	Meyers	M7	M7T	86920	31240	55680	27.84
12	Toler	T2	T2A	75020	30360	44660	22.33
13	Reese	549	549A	82120	30600	51520	25.76
14	Arbiso	123	123A	80700	33140	47560	23.78
15	Mellow	11	11A	79660	31680	47980	23.99
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							

Tonnage Total

368.27

WEIGHMASTER:





Ben's Truck & Equipment, Inc.  
**BIO INDUSTRIES, INC.**

19760 Callahan Road Red Bluff, CA

P.O. Box 732, Red Bluff, CA 96080 - 530/527-5040 - Fax 530/527-9170

**WEIGHMASTER CERTIFICATE:**

THIS IS TO CERTIFY that the following described commodity was weighted, measured or counted by a weighmaster, whose signature is on the certificate, who is a recognized authority of accuracy, as prescribed by Chapter 7 (commencing with Section 12700) of Division 5 of the California Business and Professions Code, administered by the Division of Measurement Standards of the California Department of Food and Agriculture.

GENERATOR: Cash Oil  
421 J Street Arcata, CA

DATE: 01/21/2004

JOB: T-979-04

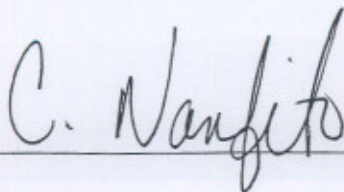
COMMODITY: Contaminated Soil

	CARRIER NAME	TRUCK NO	TRAILER NO	GROSS LBS	TARE LBS	NET LBS	NET TONS
1	Ben's	21	21B	78040	29100	48940	24.47
2	Ben's	38	23E	79520	32980	46540	23.27
3	Ben's	41	24E	79240	32600	46640	23.32
4	Ben's	34	44T	78740	30020	48720	24.36
5	Reese	549	549A	82040	30800	51240	25.62
6	Toler	T2	T2A	86200	30360	55840	27.92
7	Meyers	M7	M7T	80760	31100	49660	24.83
8	J & R	531	531A	78820	26160	52660	26.33
9	Ben's	39	25E	79940	32480	47460	23.73
10	Arbiso	123	123A	74300	32920	41380	20.69
11	Mellow	11	11A	79120	31640	47480	23.74
12	Ben's	48	48P	78360	31320	47040	23.52
13	Ben's	23	23P	77580	28720	48860	24.43
14	Ben's	32	21E	79100	33040	46060	23.03
15	Taylor	T53	T53A	82280	29200	53080	26.54
16	Taylor	T49	T49A	79640	29860	49780	24.89
17							
18							
19							
20							
21							
22							
23							
24							
25							

Tonnage Total

390.69

WEIGHMASTER:





Ben's Truck & Equipment, Inc.  
**BIO INDUSTRIES, INC.**

19760 Callahan Road Red Bluff, CA

P.O. Box 732, Red Bluff, CA 96080 - 530/527-5040 - Fax 530/527-9170

**WEIGHMASTER CERTIFICATE:**

THIS IS TO CERTIFY that the following described commodity was weighted, measured or counted by a weighmaster, whose signature is on the certificate, who is a recognized authority of accuracy, as prescribed by Chapter 7 (commencing with Section 12700) of Division 5 of the California Business and Professions Code, administered by the Division of Measurement Standards of the California Department of Food and Agriculture.

GENERATOR: Cash Oil  
421 J Street Arcata, CA  
COMMODITY: Contaminated Soil

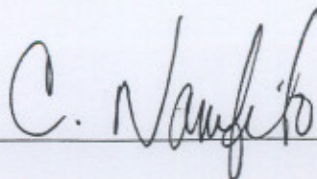
DATE: 01/22/2004  
JOB: T-979-04

	CARRIER NAME	TRUCK NO	TRAILER NO	GROSS LBS	TARE LBS	NET LBS	NET TONS
1	Ben's	22	22E	80500	33380	47120	23.56
2	Ben's	33	26E	79200	32700	46500	23.25
3	Ben's	34	34P	78920	30180	48740	24.37
4	Ben's	39	25E	80860	32540	48320	24.16
5	Meyers	M7	M7T	76980	31300	45680	22.84
6	J & R	531	531A	80000	26000	54000	27.00
7	Toler	T2	T2A	77980	30560	47420	23.71
8	Reese	549	549A	84620	30480	54140	27.07
9	Arbiso	123	123A	79680	32940	46740	23.37
10	Ben's	21	21P	78760	29480	49280	24.64
11	Ben's	41	24E	79040	32640	46400	23.20
12	Ben's	48	48P	83100	31280	51820	25.91
13	Ben's	32	21E	80760	33100	47660	23.83
14	Mellow	11	11A	85020	31600	53420	26.71
15	Ben's	23	23P	82040	28720	53320	26.66
16	Taylor	T53	T53A	86480	29360	57120	28.56
17	Taylor	T49	T49A	81120	29740	51380	25.69
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							

Tonnage Total

424.53

WEIGHMASTER:





Ben's Truck & Equipment, Inc.  
**BIO INDUSTRIES, INC.**

19760 Callahan Road Red Bluff, CA

P.O. Box 732, Red Bluff, CA 96080 - 530/527-5040 - Fax 530/527-9170

**WEIGHMASTER CERTIFICATE:**

THIS IS TO CERTIFY that the following described commodity was weighted, measured or counted by a weighmaster, whose signature is on the certificate, who is a recognized authority of accuracy, as prescribed by Chapter 7 (commencing with Section 12700) of Division 5 of the California Business and Professions Code, administered by the Division of Measurement Standards of the California Department of Food and Agriculture.

GENERATOR: Cash Oil  
421 J Street Arcata, CA  
COMMODITY: Contaminated Soil

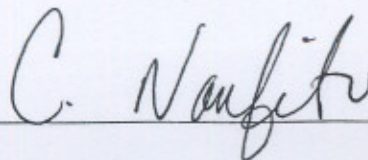
DATE: 01/23/2004  
JOB: T-979-04

	CARRIER NAME	TRUCK NO	TRAILER NO	GROSS LBS	TARE LBS	NET LBS	NET TONS
1	Ben's	38	23E	80900	33560	47340	23.67
2	Ben's	33	26E	80860	33600	47260	23.63
3	Ben's	48	48P	78320	31260	47060	23.53
4	Ben's	23	23P	79660	28700	50960	25.48
5	Ben's	21	21B	78260	29040	49220	24.61
6	J & R	531	531T	77560	26260	51300	25.65
7	Ben's	34	44P	78020	29860	48160	24.08
8	Meyer	M7	8T	74040	30860	43180	21.59
9	Toler	2	TT2	91380	30320	61060	30.53
10	Arbiso	123	123A	76480	33100	43380	21.69
11	Reese	549	549A	92440	30500	61940	30.97
12	Taylor	T53	T53A	92460	29280	63180	31.59
13	Taylor	T49	T49A	86340	29560	56780	28.39
14	Ben's	41	24E	80120	32320	47800	23.90
15	Ben's	38	23E	80020	33300	46720	23.36
16	Ben's	39	25E	84320	32440	51880	25.94
17	Ben's	43	21E	80280	33100	47180	23.59
18	Ben's	22	22E	80540	33080	47460	23.73
19	Mellow	11	11ED	79460	31380	48080	24.04
20							
21							
22							
23							
24							
25							

Tonnage Total

479.97

WEIGHMASTER:





Ben's Truck & Equipment, Inc.  
**BIO INDUSTRIES, INC.**

19760 Callahan Road Red Bluff, CA

P.O. Box 732, Red Bluff, CA 96080 - 530/527-5040 - Fax 530/527-9170

**WEIGHMASTER CERTIFICATE:**

THIS IS TO CERTIFY that the following described commodity was weighted, measured or counted by a weighmaster, whose signature is on the certificate, who is a recognized authority of accuracy, as prescribed by Chapter 7 (commencing with Section 12700) of Division 5 of the California Business and Professions Code, administered by the Division of Measurement Standards of the California Department of Food and Agriculture.

GENERATOR: Cash Oil  
421 J Street Arcata, CA

DATE: 01/26/2004

JOB: T-979-04

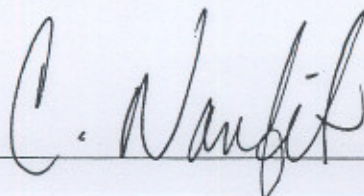
COMMODITY: Contaminated Soil

	CARRIER NAME	TRUCK NO	TRAILER NO	GROSS LBS	TARE LBS	NET LBS	NET TONS
1	Ben's	39	25E	85920	32720	53200	26.60
2	Ben's	33	26E	82120	33764	48356	24.18
3	Ben's	38	23E	81560	33320	48240	24.12
4	Ben's	23	23P	82240	28660	53580	26.79
5	Toler	2	TT2	88900	30500	58400	29.20
6	Reese	549	549A	86860	30800	56060	28.03
7	Meyer	M7	M7A	81080	31440	49640	24.82
8	Ben's	21	21P	80420	29220	51200	25.60
9	Ben's	48	48P	94880	31260	63620	31.81
10	J & R	531	531T	79380	26180	53200	26.60
11	Arbiso	123	123A	81540	32920	48620	24.31
12	Mellow	11	11A	76720	31520	45200	22.60
13	Taylor	49	49A	81100	29540	51560	25.78
14	Taylor	53	53A	78660	29320	49340	24.67
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							

Tonnage Total

365.11

WEIGHMASTER:







# Seaport Environmental NON-HAZARDOUS WATER TRANSPORT FORM

--	--	--	--

## GENERATOR INFORMATION

CASH OIL ARCATA  
421 J STREET  
ARCATA Ca

## CUSTOMER INFORMATION

Bens Truck & Equip  
530-527-5040  
PO #

DESCRIPTION OF WATER: Excavation dewatering  
NON-HAZARDOUS WASTE WATER, MONITORING WELL PURGE WATER AND/OR AUGER RINSATE, TANK RINSATE OR ABOVE DESCRIBED WATER. THIS WATER MAY CONTAIN DISSOLVED HYDROCARBONS. I CERTIFY THAT THE ABOVE NAMED MATERIAL IS A LIQUID EXEMPT FROM RCRA PER 40 CFR 261.4 (b)(10) AND DOES NOT MEET THE CRITERIA OF HAZARDOUS WASTE AS DESCRIBED IN 22 CCR ARTICLE 11 OR ANY OTHER APPLICABLE STATE LAW, HAS BEEN PROPERLY DESCRIBED, CLASSIFIED AND PACKAGED AND IS IN PROPER CONDITION FOR TRANSPORTATION ACCORDING TO APPLICABLE REGULATIONS.

Melissa Richard - Clearwater Group  
Generator/Authorized Agent

Melissa Richard 1/20/04  
Sign date

## SITE INFORMATION

421 J STREET  
ARCATA  
Ca

GROSS	
TARE	
NET	
TOTAL GALLONS	5,000

Calculated at 8.34lbs per USG

## TRANSPORTER INFORMATION

Ben's Trucking

Truck ID: 22/53A

Driver: Doug Morgan 1/20/04  
Print full name & sign date

TIME OUT	
TIME IN	
TIME SPENT	

TU

## DISPOSAL FACILITY INFORMATION EPA ID: CAL 000032058

Seaport Environmental  
675 Seaport Boulevard  
Redwood City, Ca 94063  
Phone: (650) 364 1024

## Approval Number

500 - 274

## Solids %Wt

6.5

## pH

6

TU 15 95

Solids Surcharge  
\$/USG

Received by:  
Print full name & sign

[Signature]  
date

01-20-04





Seaport Environmental  
NON-HAZARDOUS WATER TRANSPORT FORM

354834

GENERATOR INFORMATION

CASH OIL ARCATA  
421 J STREET  
ARCATA Ca

CUSTOMER INFORMATION

Bens Truck & Equip  
530-527-5040  
PO #

DESCRIPTION OF WATER: Excavation dewatering  
NON-HAZARDOUS WASTE WATER. MONITORING WELL PURGE WATER AND/OR AUGER RINSATE, TANK RINSATE OR ABOVE  
DESCRIBED WATER. THIS WATER MAY CONTAIN DISSOLVED HYDROCARBONS. I CERTIFY THAT THE ABOVE NAMED MATERIAL  
IS A LIQUID EXEMPT FROM RCRA PER 40 CFR 261.4 (b)(10) AND DOES NOT MEET THE CRITERIA OF HAZARDOUS WASTE AS  
DESCRIBED IN 22 CCR ARTICLE 11 OR ANY OTHER APPLICABLE STATE LAW, HAS BEEN PROPERLY DESCRIBED,  
CLASSIFIED AND PACKAGED AND IS IN PROPER CONDITION FOR TRANSPORTATION ACCORDING TO APPLICABLE  
REGULATIONS.

Generator/Authorized Agent

Sign

date

SITE INFORMATION

421 J STREET  
ARCATA  
Ca

GROSS	
TARE	
NET	
TOTAL GALLONS	4,000

Calculated at 8.34lbs per USG

TRANSPORTER INFORMATION

Ben's Trucking

Truck ID: 22/531

Driver: Doug Morgan  
Print full name & sign

date

TIME OUT	
TIME IN	
TIME SPENT	

DISPOSAL FACILITY INFORMATION EPA ID: CAL 000032058

Seaport Environmental  
675 Seaport Boulevard  
Redwood City, Ca 94063  
Phone: (650) 364 1024

Approval Number

500 - 274

Solids %Wt

pH

10%

7

Solids Surcharge  
\$/USG

Received by:

Print full name & sign

date

01-21-04





Seaport Environmental  
NON-HAZARDOUS WATER TRANSPORT FORM

--	--	--	--

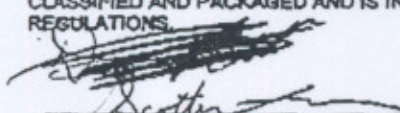
GENERATOR INFORMATION

CASH OIL ARCATA  
421 J STREET  
ARCATA Ca

CUSTOMER INFORMATION

Bens Truck & Equip  
530-527-5040  
PO #

DESCRIPTION OF WATER: Excavation dewatering  
NON-HAZARDOUS WASTE WATER, MONITORING WELL PURGE WATER AND/OR AUGER RINSATE, TANK RINSATE OR ABOVE  
DESCRIBED WATER. THIS WATER MAY CONTAIN DISSOLVED HYDROCARBONS. I CERTIFY THAT THE ABOVE NAMED MATERIAL  
IS A LIQUID EXEMPT FROM RCRA PER 40 CFR 261.4 (b)(10) AND DOES NOT MEET THE CRITERIA OF HAZARDOUS WASTE AS  
DESCRIBED IN 22 CCR ARTICLE 11 OR ANY OTHER APPLICABLE STATE LAW, HAS BEEN PROPERLY DESCRIBED,  
CLASSIFIED AND PACKAGED AND IS IN PROPER CONDITION FOR TRANSPORTATION ACCORDING TO APPLICABLE  
REGULATIONS.

  
Generator/Authorized Agent

Sign

date

*Dufey* 1-26-04

SITE INFORMATION

421 J STREET  
ARCATA  
Ca

GROSS	
TARE	
NET	
TOTAL GALLONS	4,000

Calculated at 8.34lbs per USG

TRANSPORTER INFORMATION

Ben's Trucking

Truck ID: #43

Driver: *Floyd Manry*  
Print full name & sign

date 1-26-04

TIME OUT	
TIME IN	
TIME SPENT	

DISPOSAL FACILITY INFORMATION EPA ID: CAL 000032098

Seaport Environmental  
675 Seaport Boulevard  
Redwood City, Ca 94063  
Phone: (650) 364 1024

Approval Number

500 - 274

Solids %WT

2

pH

7

Solids Surcharge  
\$/USG

Received by:  
Print full name & sign

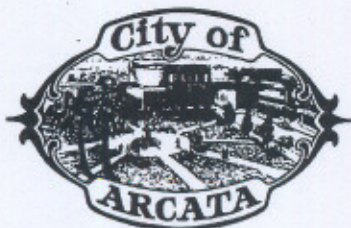
*Shane*

date

*Shelley*

1-26





736 F Street  
Arcata, CA 95521

Thursday, March 25, 2004

City Manager  
(707) 822-5953

Environmental Services  
822-8184

Police  
822-2428

Recreation  
822-7091

Community Development  
822-5955

Finance  
822-5951

Public Works  
822-5957

Transportation  
822-3775

Scott Ferriman, Principal Scientist  
Blue Rock Environmental, Inc.  
535 Third Street, suite 100  
Eureka, CA 95501  
for: Cash Oil Company

**RE: FORMER CASH OIL SITE ONE TIME DISCHARGE**

Scott Ferriman:

After reviewing your one time groundwater discharge application and related analytical analysis, the City will grant approval to discharge groundwater into the City's wastewater collection system with the following provisions:

1. In no case shall any water be discharged to the City containing contaminants in excess of the following limits:

Wastewater Discharge Limits			
Parameter	Daily Max	Sample Type	EPA Method
TPH gasoline	25 mg/L	Grab	5030
MTBE	200 µg/L	Grab	8021
BTEX	Monitoring Purposes	Grab	
pH	5.0-9.5	Grab	

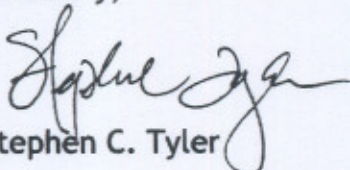
2. This permit specifically deals with the water currently stored in the tank. The lab results show the water contains 180 µg/L MTBE and 0.14 mg/L TPH<sub>gasoline</sub>. No other water shall be included in this discharge other than that which was sampled



3. The water may be discharged to the City's wastewater collection system at flows equal to or less than 15 gpm. The entry point shall be the clean out for the domestic waste line as specified in your application.
4. A fee is charged by the gallon for discharges of this nature so the total volume must be reported. This volume may be measured by calibrated flow measuring equipment or calculated using tank volume measurements.
5. The City shall be notified when the discharge event begins and when it ends. Please leave a message with Erik C. Lust at (707) 825-2156.
6. At report detailing the dates of discharge, the volume discharged, the analytical analysis, and any noteworthy details shall be submitted within 30 days.
7. City staff must be able to access the discharge for sampling and inspection at any time. Arrangements shall be made in advance if the discharge continues during non-business hours or if the site will be locked by providing contact information with the City in the event that a non-routine sampling or inspection is required.

If you have any questions or require additional information, please contact me at (707) 822-8184.

Sincerely,



Stephen C. Tyler

Director of Environmental Services

SCT/ecl